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Michigan Timber Industry—An Assessment of Timber Product Output and Use, 1996

David E. Haugen and John Pilon

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FOREWORD

This bulletin reports findings of a survey of all primary wood-using mills in Michigan in 1996. Details of the industry's size, composition, use of roundwood, and generation and disposition of residues are discussed. Such detailed information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, forest industry development, and forest research.

Special thanks are given to the primary wood-using firms that supplied information for this study, and to the Michigan Department of Natural Resources for canvassing these wood-using firms. Their cooperation is greatly appreciated.

In this bulletin, all volumes are reported in product-specific standard units and/or cubic feet. When necessary, volumes reported by mills in nonstandard units were converted to standard units using regional conversion factors. Reported trends and changes in the Michigan primary wood-using industry are based on comparisons with the previous survey conducted in 1994. Row and column data of tables may not sum due to rounding, but data in each table cell are accurately displayed.

Note

The accuracy of this report depends a great deal on the information supplied by each of the mills canvassed for this report.

CONTENTS

Highlights 1

Primary Timber Industry—Industrial Roundwood 1

Pulpwood 3

Saw Logs 4

Veneer 6

Other Products 7

Timber Removals 7

Harvest Residues 8

Primary Mill Residues 8

Regional Trends 10

Eastern Upper Peninsula 10

Western Upper Peninsula 10

Northern Lower Peninsula 10

Southern Lower Peninsula 11

Appendix 12

Study Methods 12

Definition of Terms 12

Common and Scientific Names of Trees Species Mentioned in This Report 16

Table Titles 18

Tables 20

Michigan Timber Industry—An Assessment of Timber Product Output and Use, 1996

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HIGHLIGHTS

PRIMARY TIMBER INDUSTRY—INDUSTRIAL ROUNDWOOD

- In 1996, Michigan's primary wood-using industry was comprised of 318 mills, including 35 sawmills that each processed less than 50 thousand board feet (table 1 and fig. 1).
- Between 1994 and 1996, the primary wood-using industry increased by 34 mills, mostly small sawmills.
- In 1996, Michigan's primary wood-using industry processed 345 million cubic feet of roundwood—a 3-percent increase since 1994 (table 2).
- Michigan's 8 pulp mills and 4 particleboard plants processed 222 million cubic feet of roundwood in 1996, a 7-percent increase from 1994. Pulp mills and particleboard plants processed 64 percent of all industrial roundwood in the State.
- Hardwoods accounted for 78 percent of all cubic feet of roundwood processed by the State's primary wood-using industry in 1996.
- In 1996, 356 million cubic feet of industrial roundwood was harvested from Michigan's forests, a decrease of 8 percent from 1994 (table 3). Softwood production increased by almost 6 percent, while hardwood production decreased by nearly 12 percent.
- The increase in softwood production can be attributed to increased use of red pine in pulpwood and industrial fuelwood. The decline in hardwood production is linked to the decreased use of aspen and red oak, primarily in pulpwood and industrial fuelwood, and soft maple saw log production.
- Even though pulpwood production decreased from 1994 to 1996, pulpwood still is the predominant roundwood product harvested from Michigan's forest (fig. 2).
- The Upper Peninsula produced nearly 53 percent of the State's industrial roundwood in 1996 (fig. 3).
- The Western Upper Peninsula produced nearly 50 percent of the State's veneer logs and 43 percent of the State's pulpwood. The Northern Lower Peninsula produced 58 percent of the State's saw logs and all the State's industrial fuelwood.

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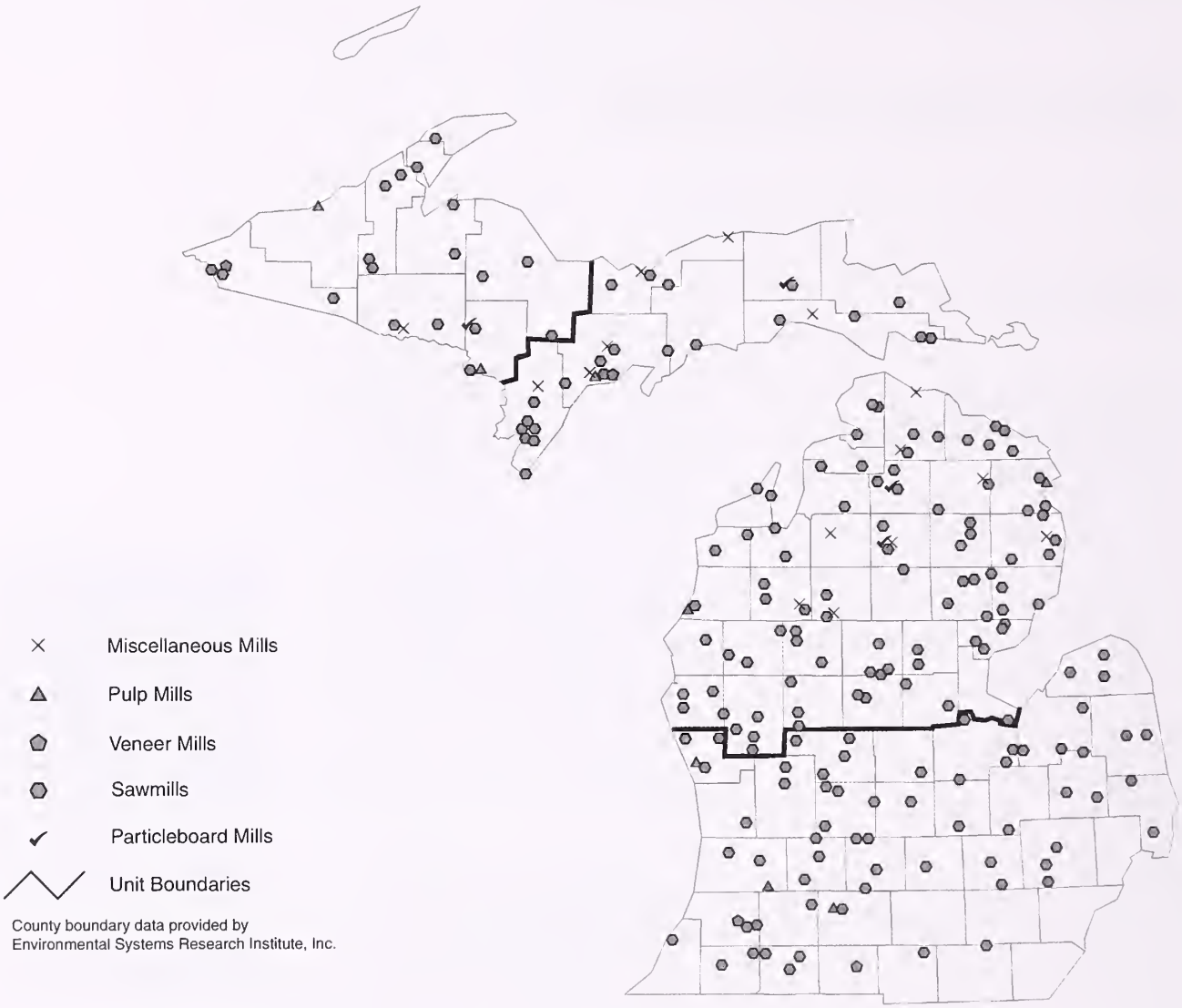


Figure 1.—*Location and kind of primary wood-using mills in Michigan, 1996.*

PULPWOOD

- Although pulpwood production decreased by 4 percent from 1994 to 1996, over 3 million cords of pulpwood (including both roundwood and mill residues generated by the State's other primary wood-using industries) were produced in Michigan for the fourth straight year in a row (table 4 and fig. 4).

- Roundwood accounted for 91 percent of the pulpwood produced in 1996, with hardwoods contributing 79 percent of the total roundwood production. Aspen alone accounted for nearly one-third of the total roundwood production (table 5).

- Michigan's pulpwood and particleboard mills used 90 percent of the State's total pulpwood production (table 5). The remaining 10 percent was shipped out of State, with the bulk of it going to Wisconsin for processing.

- Aspen, spruce, and jack pine were the major species exported in 1996, together making up 68 percent of the total exports.

- The Western Upper Peninsula produced 43 percent of the roundwood harvested for pulpwood in the State in 1996 (table 6).

- Four counties in the Western Upper Peninsula (Marquette, Ontonagon, Iron, and Houghton) each reported over 175 thousand standard cords of roundwood harvested for pulpwood in 1996.

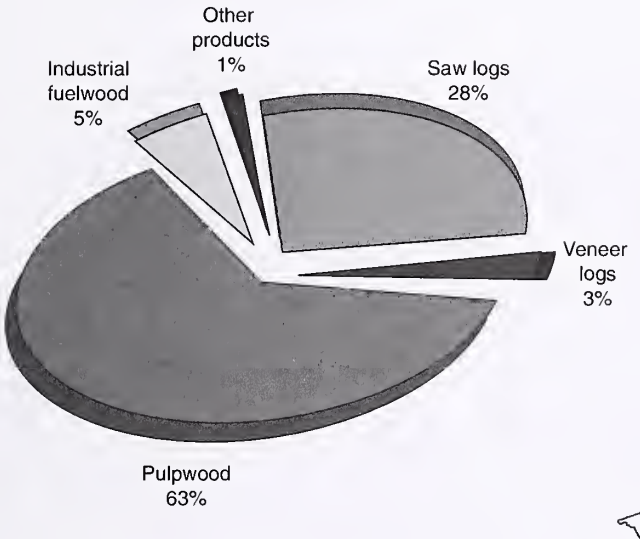


Figure 2.—*Industrial roundwood production by product, Michigan, 1996.*

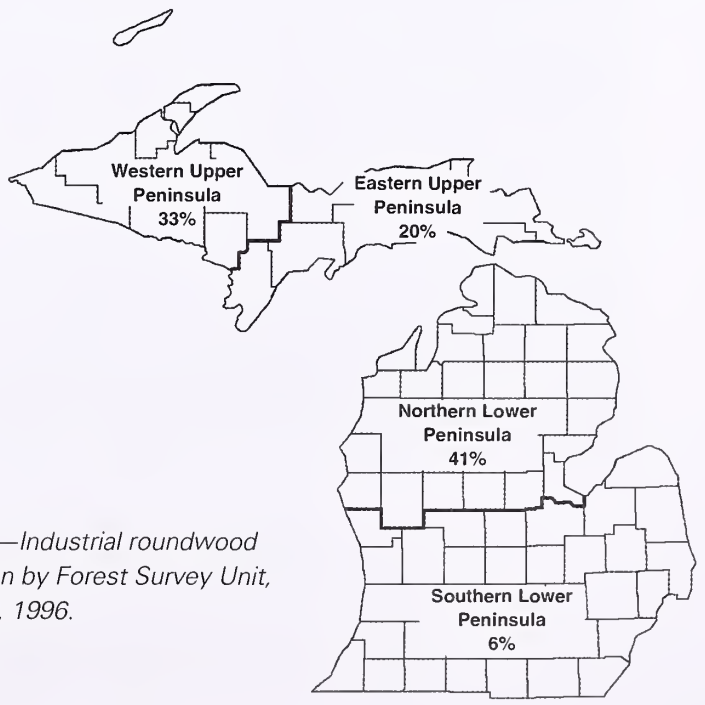


Figure 3.—*Industrial roundwood production by Forest Survey Unit, Michigan, 1996.*

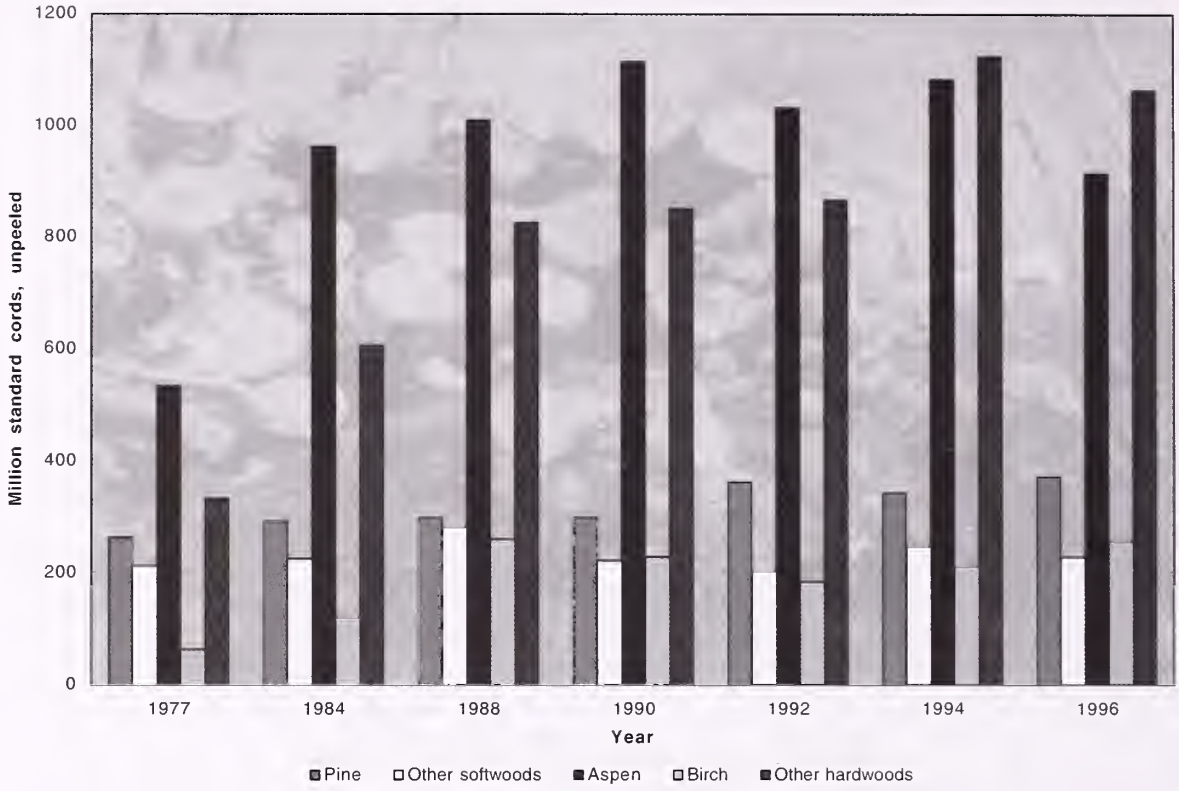


Figure 4.—*Michigan pulpwood production by species group for select years.*

- Aspen, hard maple, soft maple, and jack pine were the four major species groups of roundwood harvested for pulpwood in 1996. Combined, these four species accounted for 68 percent of the total roundwood production.

- Pulpwood receipts in 1996 totaled 3.1 million cords, a slight decrease from the nearly 3.3 million cords recorded in 1994 (table 7).

- Approximately 91 percent of pulpwood received in 1996 came from roundwood; aspen accounted for almost one-third of the roundwood supplied to Michigan's pulp and particleboard mills.

- Nearly 91 percent of the pulpwood processed in the State for pulp and particleboard was supplied from Michigan forests in 1996. The remainder was imported from neighboring States, mainly Wisconsin, and Canada (table 8). Canada supplied 59 thousand cords of pulpwood, a decrease of 18 percent from 1994.

- Aspen, white birch, and hard maple were the three main species imported, accounting for 64 percent of the total imports for the State (table 9).

SAW LOGS

- In 1996, 574 million board feet of saw logs were harvested in Michigan—a decrease of 84.2 million board feet (13 percent) from 1994 (table 10).

- Much of the decrease was associated with aspen, soft maple, and ash.

- The foremost saw log species harvested in 1996 include hard maple (116 million board feet), red oak (101 million board feet), red pine (99 million board feet), and aspen (79 million board feet).

- Saw log receipts also decreased 12 percent from 1994 to 1996; most of the decrease was associated with hard maple and aspen.

- Michigan sawmills processed nearly 90 percent of the State's production of saw logs (table 11 and fig. 5). The remaining 10 percent was exported to Wisconsin, Indiana, Ohio, Minnesota, and Canada.

- In 1996, as in 1994, Wisconsin and Indiana received the lion's share of saw logs exported from Michigan's forests. Hard maple replaced aspen as the largest volume by species shipped to Wisconsin mills, while red oak remained the largest volume by species shipped to Indiana mills.

- In 1996, hard maple, aspen, red oak, and red pine accounted for 47 percent of saw logs exported from the State.

- Nearly 58 percent of the State's saw log production came from the Northern Lower Peninsula in 1996 (table 12).

- Newaygo County in the Northern Lower Peninsula produced more than 20 million board feet of saw logs in 1996.

- In 1996, less than 3 percent of the saw log volume was imported into the State (table 13). Most of the imported saw log volume came from Wisconsin and Canada.

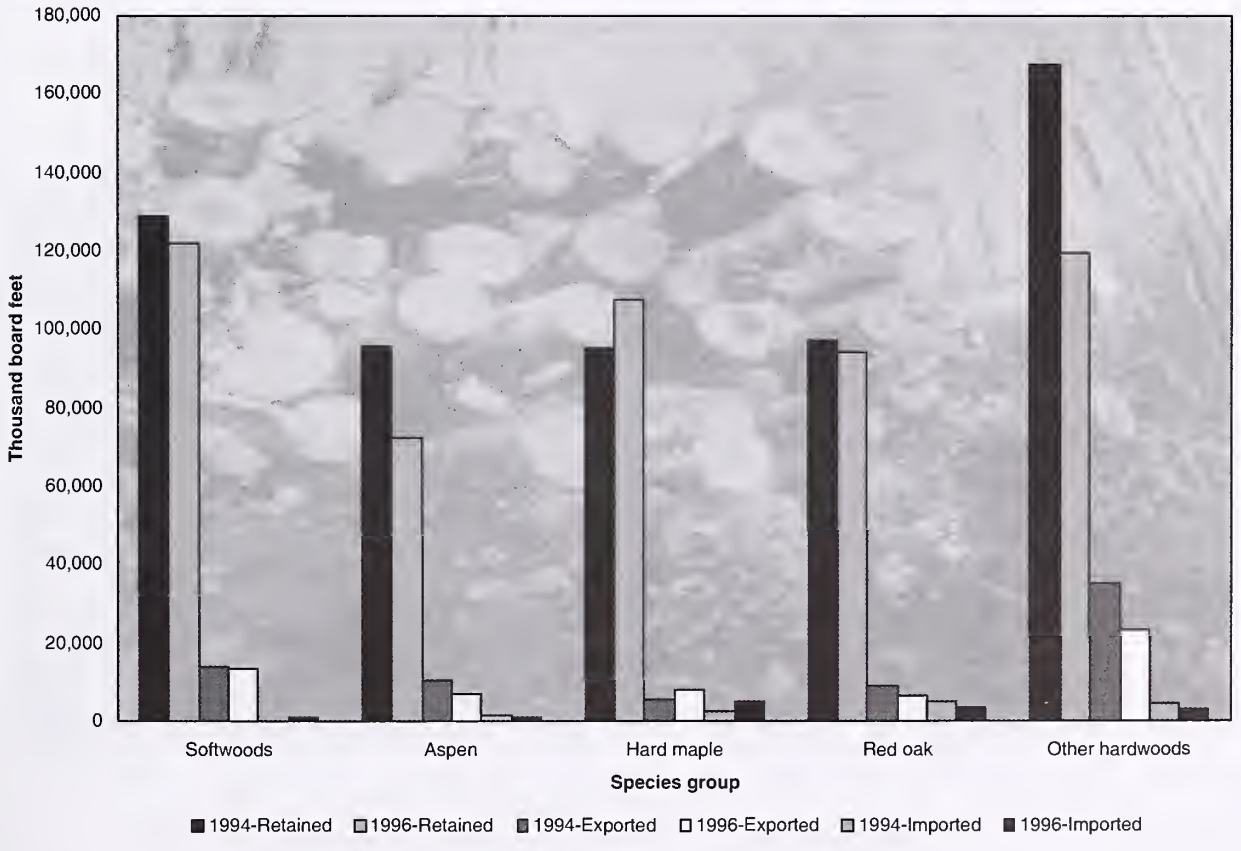


Figure 5.—*Saw log production exported, imported, and retained by species group in Michigan, 1994 and 1996.*

VENEER LOGS

- Veneer log production increased by 23 percent to 61 million board feet in 1996, continuing an upward trend dating back to 1988. Veneer log receipts also increased by 23 percent, going from 45 million board feet in 1994 to 55 million board feet in 1996 (table 14).

- Aspen veneer log production increased by 14 million board feet between 1994 and 1996, replacing hard maple as the number one species produced for veneer logs in the State (table 15).

- Aspen and hard maple account for nearly 72 percent of all veneer logs produced in the State.

- In 1996, over 65 percent of the veneer log volume harvested was retained in Michigan for processing (table 16 and fig. 6). The remaining volume was shipped out of State, mostly (60 percent) to Wisconsin.

- As in 1994, hard maple was the number one species of veneer log exported from Michigan.

- Nearly half of all veneer log volume was produced in the Western Upper Peninsula in 1996.

- Michigan's forests supplied nearly 73 percent of the veneer logs used in the State's mills in 1996 (table 17). The remaining volume came from other States and Canada.

- Aspen, hard maple, and cottonwood make up more than 82 percent of the veneer log volume processed in the State. Nearly 90 percent of the cottonwood processed in Michigan veneer mills came from Indiana forests (table 18).

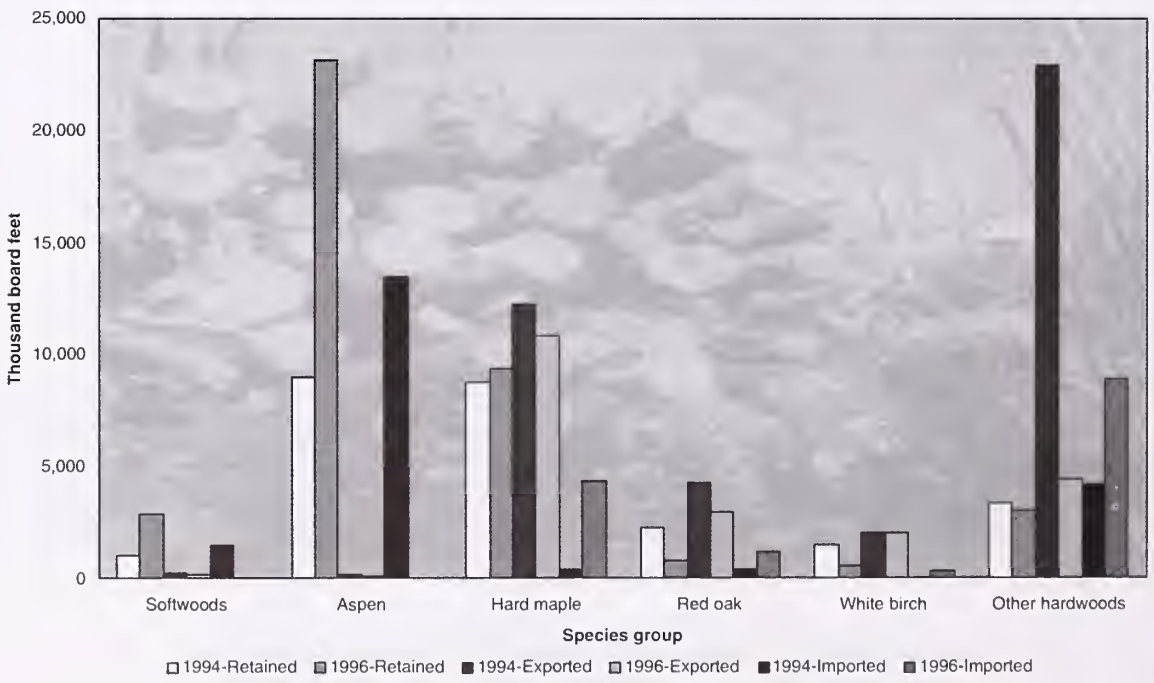


Figure 6.—*Veneer log production exported, imported, and retained by species group in Michigan, 1994 and 1996.*

OTHER PRODUCTS

- In 1996, industrial fuelwood totaled more than 19 million cubic feet, a decrease of more than 18 percent between surveys (table 3).

- The use of softwood species for industrial fuelwoods increased dramatically between surveys. More than 12 million cubic feet of the industrial fuelwood produced in Michigan were from softwoods, an increase of 62 percent since 1994.

- In 1996, all of the State's industrial fuelwood was produced in the Northern Lower Peninsula.

- Other industrial roundwood harvests increased in Michigan between surveys, going from 3.8 million cubic feet in 1994 to 4.54 million cubic feet in 1996. These products include excelsior/shavings bolts, cabin logs, posts and pole products, and other miscellaneous products.

- Nearly half of the volume for these other products was cut from northern white-cedar. Posts and cabin logs were the main products.

TIMBER REMOVALS

- In the process of harvesting industrial roundwood in 1996, 325 million cubic feet of the State's growing-stock volume were removed from timberland. Of this volume, 304 million cubic feet, or 93 percent, were used for products. The remaining 21 million cubic feet were left on the ground as logging residue (table 19 and fig. 7).

- Over 168 million cubic feet of growing stock were removed from the timberlands of the Upper Peninsula, with aspen accounting for 27 percent of those removals (table 20).

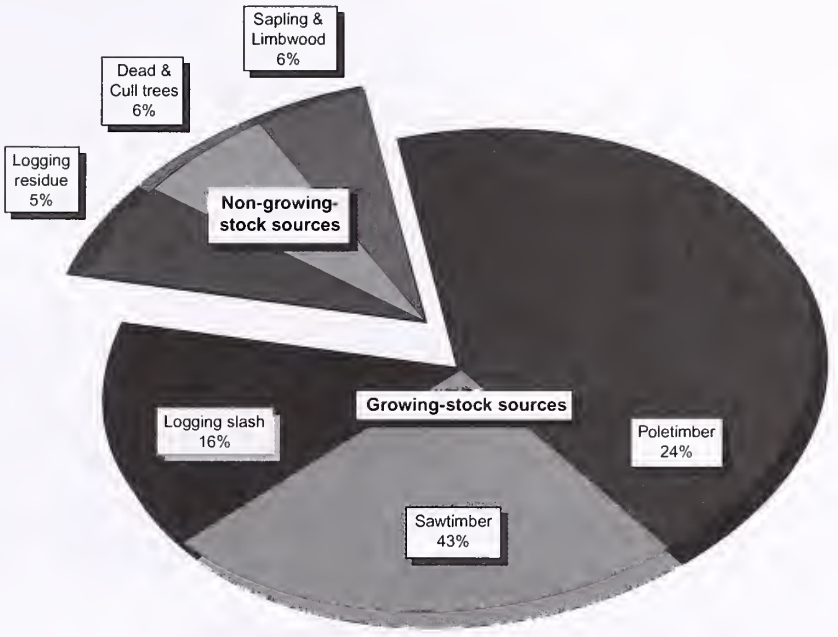


Figure 7.—*Distribution of timber removals for industrial roundwood by source of material, Michigan, 1996.*

- In 1996, industrial roundwood harvesting also removed over 1 billion board feet of wood from the sawtimber portion of the growing-stock inventory (table 21). This was an 8-percent decrease from 1994.

- Roughly 45 percent of all sawtimber removals occurred in the Northern Lower Peninsula, the area of the State where saw log production was concentrated.

- Red pine and jack pine together made up more than 71 percent of the total sawtimber removals for softwoods in 1996.

- In 1996, as in 1994, aspen, hard and soft maple, red pine, and red oak accounted for more than two-thirds of all sawtimber removals for the State. Hard and soft maple combined accounted for 27 percent of all sawtimber removals.

HARVEST RESIDUES

- Harvesting of industrial roundwood products left almost 94 million cubic feet of harvest residues on the ground in 1996 (table 22), an increase of roughly 4 percent over 1994.

- In 1996, as in 1994, the Upper Peninsula had nearly 60 percent of the State's total harvest residues; this correlates with a concentration of pulpwood production in the region.

- Hard maple, aspen, red pine, and soft maple accounted for over 62 percent of all harvest residues produced in the State. Red pine and jack pine accounted for 63 percent of all softwood harvest residue produced.

PRIMARY MILL RESIDUES

- In 1996, Michigan's primary wood-using industry produced as byproducts 2.4 million green tons of wood and bark residues (table 23).

- Bark made up about 42 percent of the total green weight volume of mill residues (fig. 8).

- Less than 1 percent of all mill residues went unused. The largest use of mill residue was for industrial fuel, which consumed 53 percent of all residues (fig. 9).

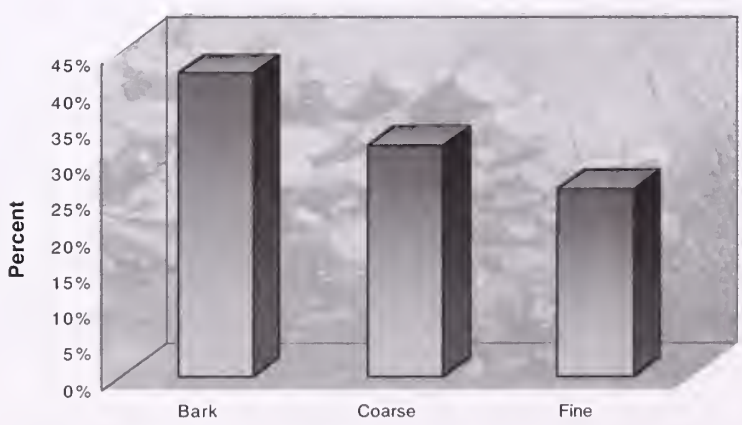


Figure 8.—*Distribution of residues (percent of total green weight volume) generated by primary wood-using mills by type of residue, Michigan, 1996.*

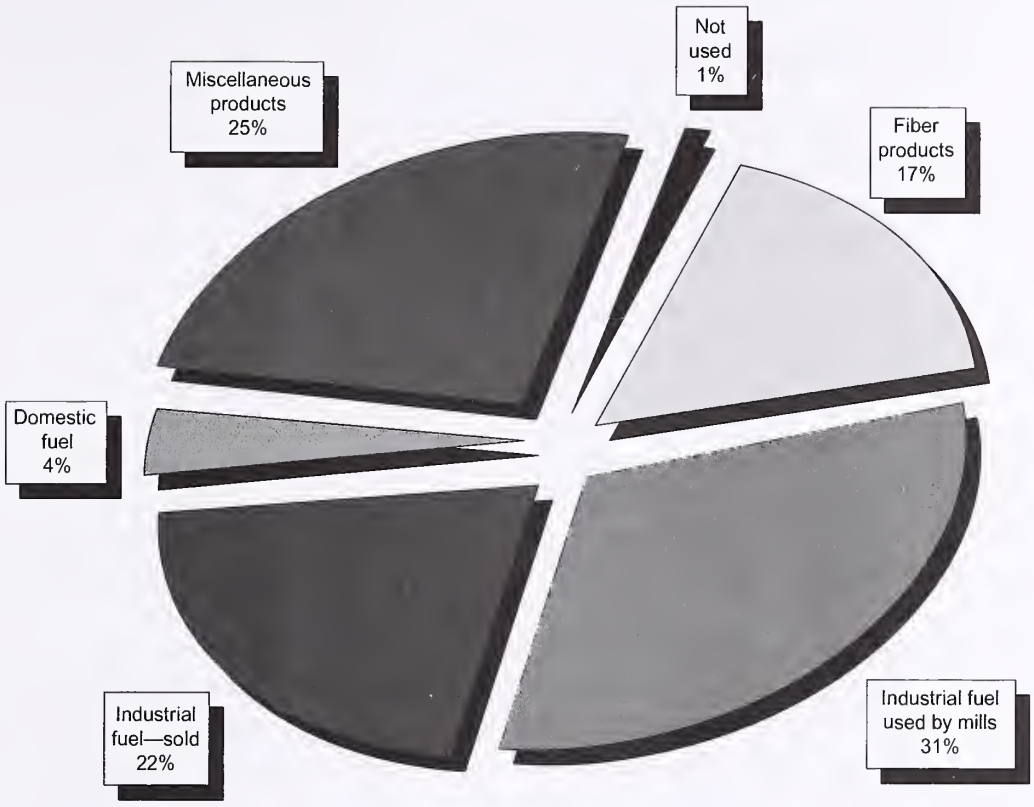


Figure 9.—*Methods of disposal of residues generated by primary wood-using mills, Michigan, 1996.*

- Of the mill residues used for industrial fuel, 41 percent was used on site, while an additional 59 percent was sold to other mills or industries for their fuel needs.

- More than 52 percent of coarse wood residue was used for fiber products, and most of the remaining coarse wood residue was used for industrial fuel or other miscellaneous products such as livestock bedding or mulch.

- Nearly 65 percent of fine wood residue was used for industrial fuel. Most of the remaining fine wood residue went into miscellaneous products like livestock bedding and mulch.

- Almost three-quarters of the bark residues produced were burned as industrial fuel, and almost one-quarter of the remaining residue was used for miscellaneous uses.

- Over 43 percent of the State's mill residues were generated in the Northern Lower Peninsula.

REGIONAL TRENDS

Eastern Upper Peninsula

- The Eastern Upper Peninsula Unit produced more than 70 million cubic feet of industrial roundwood in 1996, a decrease of 10 percent from 1994 to 1996.
- Roughly 20 percent of Michigan's roundwood production came from the timberlands of the Eastern Upper Peninsula.
- Saw log production decreased by 17 percent between 1994 and 1996, and accounted for only 10 percent of the State's total saw log production.
- Veneer log production increased from 1.6 million cubic feet in 1994 to 2.9 million cubic feet in 1996, and represented 30 percent of the State's total veneer log production.
- Although pulpwood production decreased by 11 percent between 1994 and 1996, the Eastern Upper Peninsula produced 24 percent of the State's total production of pulpwood.
- Sixty-nine percent of Michigan's post production and 65 percent of its cabin log production in 1996 were supplied by the timberlands of the Eastern Upper Peninsula.
- In 1996, 49 mills—including 32 sawmills, 1 veneer mill, 1 pulp mill, 1 particle board mill, and 14 miscellaneous mills—operated in the Eastern Upper Peninsula.

Western Upper Peninsula

- In 1996, more than 116 million cubic feet of roundwood were produced in the Western Upper Peninsula Unit of Michigan, which accounted for almost one-third of the total statewide roundwood output.
- Industrial roundwood production remained relatively unchanged with a slight decrease (less than 1 percent) between 1994 and 1996. Softwood output levels increased by 2 percent while hardwoods decreased by 1 percent.
- Saw log production decreased by 30 percent between surveys, with the largest volume losses occurring in the aspen and hard maple species groups.
- Pulpwood production increased by nearly 7 percent between 1994 and 1996, accounting for over 82 percent of all industrial roundwood production in the Western Upper Peninsula.
- Roughly 50 percent of the State's veneer logs came from the Western Upper Peninsula.
- In 1996, the Western Upper Peninsula had 22 sawmills, 2 pulp mills, 1 veneer mill, 1 particle board mill, and 2 other miscellaneous mills.

Northern Lower Peninsula

- The Northern Lower Peninsula Unit produced more than 146 million cubic feet of industrial roundwood in 1996, a decrease of 12 percent from 1994.
- Over 40 percent of Michigan's industrial roundwood came from the Northern Lower Peninsula in 1996.
- Saw log production accounted for 57 million cubic feet of industrial roundwood produced in this unit and represented 58 percent of the State's total saw log production.
- In 1996, veneer log production increased by 35 percent, going from 443 thousand cubic feet in 1994 to 598

thousand cubic feet in 1996. Veneer log production in this unit accounted for 6 percent of the State's total veneer log volume produced.

- Pulpwood production from roundwood fell to 68 million cubic feet in 1996, a decrease of about 17 percent or 13.7 million cubic feet from 1994.

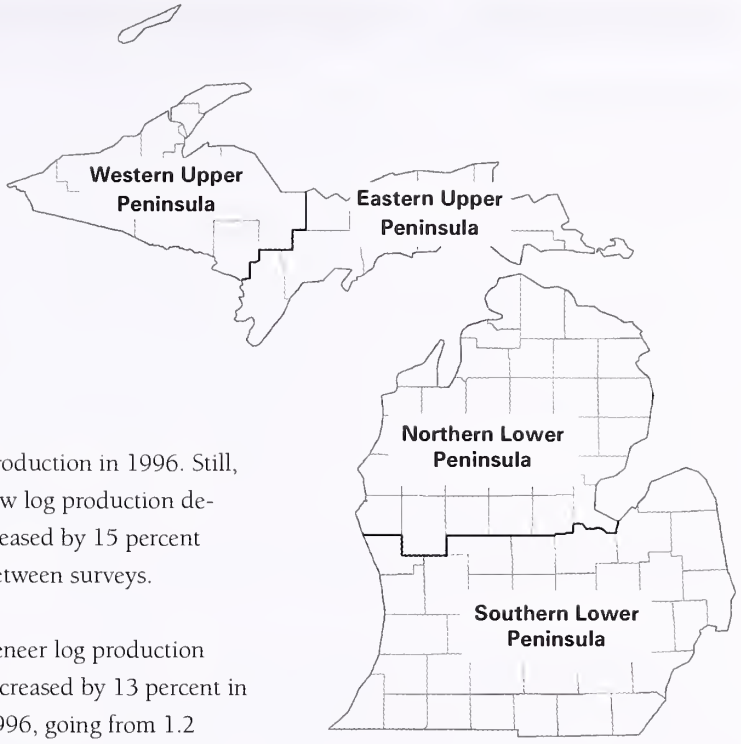
- Industrial fuelwood production in 1996 decreased by 18 percent, going from a total of 23.6 million cubic feet in 1994 to 19.3 million cubic feet in 1996. The Northern Lower Peninsula was the only unit that reported harvesting industrial fuelwood in 1996.

- In 1996, 166 mills—including 149 sawmills, 2 pulp mills, 2 particle board mills, and 13 miscellaneous mills—operated in the Northern Lower Peninsula.

Southern Lower Peninsula

- A total of 23 million cubic feet of industrial roundwood were produced in the Southern Lower Peninsula Unit in 1996 accounting for only 6 percent of the State's total industrial roundwood production.

- Saw logs accounted for over 70 percent of the unit's total industrial roundwood production in 1996. Still, saw log production decreased by 15 percent between surveys.



- Veneer log production increased by 13 percent in 1996, going from 1.2 million cubic feet in 1994 to 1.4 million cubic feet in 1996. Veneer log production in the Southern Lower Peninsula represented 14 percent of Michigan's total veneer log production for 1996.

- Pulpwood production increased by almost 3 percent between 1994 and 1996 but still represented only 2 percent of the State's total pulpwood production.

- In 1996, the Southern Lower Peninsula had 70 sawmills, 3 pulp mills, and 2 veneer mills in operation.

APPENDIX

Study Methods

This study was a cooperative effort of the Michigan Department of Natural Resources (MIDNR) and the North Central Research Station (NCRS). Using mail questionnaires supplied by NCRS and designed to determine the size and composition of Michigan's primary wood-using industry, its use of roundwood, and its generation and disposition of wood residues, the MIDNR canvassed all primary wood-using mills within the State. The MIDNR then followed up with nonresponding mills through additional mailings, telephone calls, and personal contacts until it achieved a 100-percent response. Completed questionnaires were sent to NCRS for editing and processing.

As part of data editing and processing, all industrial roundwood volumes reported on the questionnaires were converted to standard units of measure using regional conversion factors. Timber removals by source of material and harvest residues generated during logging were estimated from standard product volumes using factors developed from logging utilization studies previously conducted by NCRS. Finalized data on Michigan's industrial roundwood receipts were loaded into a regional timber removals database and supplemented with data on out-of-State uses of Michigan's roundwood to provide a complete assessment of Michigan's timber product output.

DEFINITION OF TERMS

Board foot
Unit of measure applied to roundwood. It relates to lumber that is 1 foot long, 1 foot wide, and 1 inch thick (or its equivalent).

Bolt
A short log no more than 8 feet long, to be sawn for lumber, peeled or sliced for veneer, shaved for excelsior, or converted into shingles, cooperage stock, dimension stock, blocks, blanks, etc.

Central stem
The portion of a tree between a 1-foot stump and the minimum 4.0-inch top diameter outside bark or the point where the central stem breaks into limbs.

Coarse mill residue
Wood residue suitable for chipping such as slabs, edgings, and veneer cores.

Commercial species
Tree species presently or prospectively suitable for industrial wood products. (Note: Excludes species of typically small size, poor form, or inferior quality such as hophornbeam, Osage-orange, and redbud.)

Cull removals
Net volume of rough and rotten trees, plus the net volume in sections of the central stem of growing-stock trees that do not meet regional merchantability standards, harvested for industrial roundwood products.

Dead removals
Net volume of dead trees harvested for industrial roundwood products.

Diameter at breast height (d.b.h.)
The outside bark diameter at 4.5 feet above the forest floor on the uphill side of the tree. For determining breast height, the forest floor includes the duff

layer that may be present, but does not include unincorporated woody debris that may rise above the ground line.

Fine mill residue

Wood residue not suitable for chipping such as sawdust and veneer clippings.

Forest land

Land at least 10 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use. (Note: Stocking is measured by comparing specified standards with basal area and/or number of trees, age or size, and spacing.) The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails, streams or other bodies of water, or clearings in forest areas shall be classed as forest if less than 120 feet wide.

Growing-stock removals

The growing-stock volume removed from the timberland inventory by harvesting industrial roundwood products. (Note: Includes sawtimber removals, poletimber removals, and logging residues.)

Growing-stock tree

A live timberland tree of commercial species that meets specified standards of size, quality, and merchantability. (Note: Excludes rough, rotten, and dead trees.)

Growing-stock volume

Net volume of growing-stock trees 5.0 inches d.b.h. and over, from 1 foot above the ground to a minimum 4.0-inch top diameter outside bark of the central stem or to the point where the central stem breaks into limbs.

Hardwoods

Dicotyledonous trees, usually broad-leaved and deciduous.

Harvest residues

Total net volume of unused portions of trees cut or killed by logging. (Note: Includes both logging residues and logging slash.)

Industrial fuelwood

A roundwood product, with or without bark, used to generate energy at manufacturing facilities and schools, correctional institutions, or electric generating plants.

Industrial roundwood exports

The quantity of industrial roundwood harvested in a geographical area and transported to other geographical areas.

Industrial roundwood imports

The quantity of industrial roundwood received from other geographical areas.

Industrial roundwood products

Saw logs, pulpwood, veneer logs, poles, commercial posts, pilings, cooperage logs, particleboard bolts, shaving bolts, lath bolts, charcoal bolts, and chips from roundwood used for pulp or board products.

Industrial roundwood production

The quantity of industrial roundwood harvested in a geographic area plus all industrial roundwood exported to other geographical areas.

Industrial roundwood receipts

The quantity of industrial roundwood received by commercial mills in a geographic area plus all industrial roundwood imported from other geographical areas.

Industrial roundwood retained

The quantity of industrial roundwood harvested from and processed by commercial mills within the same geographical area.

International 1/4-inch rule

A log rule or formula for estimating the board foot volume of logs, allowing 1/2-inch of taper for each 4-foot length. The rule appears in a number of forms that allow for kerf. In this form, 1/4-inch of kerf is assumed. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Limbwood removals

Net volume of all portions of a tree other than the central stem (including forks, large limbs, tops, and stumps) harvested for industrial roundwood products.

Logging residue

Net volume of unused portions of the merchantable central stem of growing-stock trees cut or killed by logging.

Logging slash
Net volume of unused portions of the unmerchantable (non-growing stock) sections of trees cut or killed by logging.

Merchantable sections
Sections of the central stem of growing-stock trees that meet either pulpwood or saw log specifications.

Net volume
Gross volume less deductions for rot, sweep, or other defects affecting use for roundwood products.

Noncommercial species
Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial roundwood products. Classified in volume tables as rough trees.

Nonforest land
Land that has never supported forests, and land formerly forested where use for timber management is precluded by development for other uses. (Note: Includes areas used for crops, active Christmas tree plantations, orchards, nurseries, improved pasture, residential areas, city parks, improved roads of any width and adjoining clearings, powerline clearings of any width, and 1- to 39.9-acre areas of water classified by the Bureau of the Census as land.) If intermingled in forest areas, unimproved roads and nonforest strips must be more than 120 feet wide and more than 1 acre to qualify as nonforest land.

Nonforest land removals
Net volume of trees on nonforest lands harvested for industrial roundwood products.

Poletimber
A growing-stock tree at least 5.0 inches d.b.h. but smaller than sawtimber size (9.0 inches d.b.h. for softwoods, 11.0 inches d.b.h. for hardwoods).

Poletimber removals
Net volume in the merchantable central stem of poletimber trees harvested for industrial roundwood products.

Primary wood-using mills
Mills receiving roundwood or chips from roundwood for processing into products such as lumber, veneer, and pulp.

Primary wood-using mill residue
Wood materials (coarse and fine) and bark generated at manufacturing plants that process industrial roundwood into principal products. These residues include wood products (byproducts) obtained incidental to production of principal products and wood materials not utilized for some product.

Rotten tree
A tree that does not meet regional merchantability standards because of excessive unsound cull.

Rough tree
A tree that does not meet regional merchantability standards because of excessive sound cull. Includes noncommercial tree species.

Roundwood
Logs, bolts, or other round sections cut from trees (including chips from roundwood).

Sapling
A live tree between 1.0 and 5.0 inches d.b.h.

Sapling removals
Net volume in saplings harvested for industrial roundwood products.

Saw log portion
That portion of the central stem of sawtimber trees between the stump and the saw log top.

Saw log top
The point on the central stem of sawtimber trees above which a saw log cannot be produced. The minimum saw log top is 7.0 inches diameter outside bark for softwoods and 9.0 inches diameter outside bark for hardwoods.

Sawtimber removals
As used in table 19, sawtimber removals refers to the net volume in the merchantable central stem of sawtimber trees harvested for industrial roundwood products. (Note: Includes the saw log and upper stem portions of sawtimber trees.) When referring to the sawtimber volume removed from the timberland inventory as in table 21, sawtimber removals refers to the net volume in the saw log portion of sawtimber trees harvested for roundwood products or left on the ground as harvest residue, and is usually expressed in thousands of board feet (International 1/4-inch rule).

Sawtimber tree

A growing-stock tree containing at least a 12-foot saw log or two noncontiguous saw logs 8 feet or longer and meeting regional specifications for freedom from defect. Softwoods must be at least 9.0 inches d.b.h. and hardwoods must be at least 11.0 inches d.b.h.

Sawtimber volume

Net volume in the saw log portion of sawtimber trees.

Softwoods

Coniferous trees, usually evergreen, having needles or scale-like leaves.

Timber product output

The volume of roundwood products produced from an area's forests.

Timberland

Forest land that is producing, or is capable of producing, in excess of 20 cubic feet per acre per year of industrial roundwood products under natural conditions, is not withdrawn from timber utilization by statute or administrative regulation, and is not associated with urban or rural development.

Tree

A woody plant usually having one or more perennial stems, a more or less definitely formed crown of foliage, and a height of at least 12 feet at maturity.

Upper stem portion

That portion of the central stem of sawtimber trees between the saw log top and the minimum top diameter of 4.0 inches outside bark, or to the point where the central stem breaks into limbs.

Veneer log

A log or bolt used in the production of plywood, finished panels, containers, or veneer sheets, both rotary cut and sliced.

COMMON AND SCIENTIFIC NAMES OF TREE SPECIES MENTIONED IN THIS REPORT

SOFTWOODS	
Pine	
Jack pine	*Pinus banksiana*
Red pine	*Pinus resinosa*
Eastern white pine	*Pinus strobus*
Spruce	
White spruce	*Picea glauca*
Black spruce	*Picea mariana*
Balsam fir	*Abies balsamea*
Eastern hemlock	*Tsuga canadensis*
Tamarack	*Larix laricina*
Northern white-cedar	*Thuja occidentalis*
Eastern redcedar	*Juniperis virginiana*
HARDWOODS	
White oak	
White oak	*Quercus alba*
Bur oak	*Quercus macrocarpa*
Chinkapin oak	*Quercus muehlenbergii*
Swamp white oak	*Quercus bicolor*
Red oak	
Northern red oak	*Quercus rubra*
Black oak	*Quercus velutina*
Northern pin oak	*Quercus ellipsoidalis*
Hickory	
Bitternut hickory	*Carya cordiformis*
Pignut hickory	*Carya glabra*
Shagbark hickory	*Carya ovata*
Birch	
White birch	*Betula papyrifera*
Yellow birch	*Betula alleghaniensis*

Hard maple
- Black maple ..... *Acer nigrum*
- Sugar maple ..... *Acer saccharum*

Soft maple
- Red maple ..... *Acer rubrum*
- Silver maple ..... *Acer saccharinum*

American beech ..... *Fagus grandifolia*

Ash
- Black ash ..... *Fraxinus nigra*
- White ash ..... *Fraxinus americana*
- Green ash ..... *Fraxinus pennsylvanica*

Balsam poplar ..... *Populus balsamifera*

Aspen
- Bigtooth aspen ..... *Populus grandidentata*
- Quaking aspen ..... *Populus tremuloides*

Eastern cottonwood ..... *Populus deltoides*

American basswood ..... *Tilia americana*

Black walnut ..... *Juglans nigra*

Elm
- American elm ..... *Ulmus americana*
- Rock elm ..... *Ulmus thomasii*
- Slippery elm ..... *Ulmus rubra*

Other hardwoods
- Northern catalpa ..... *Catalpa speciosa*
- Black cherry ..... *Prunus serotina*
- River birch ..... *Betula nigra*
- Black locust ..... *Robinia pseudoacacia*
- Yellow-poplar ..... *Liriodendron tulipifera*
- Honeylocust ..... *Gleditsia triacanthos*
- Red mulberry ..... *Morus rubra*
- Butternut ..... *Juglans cineria*
- Black willow ..... *Salix nigra*
- Boxelder ..... *Acer negundo*
- Hackberry ..... *Celtis occidentalis*

TABLE TITLES

Table 1.—*Number of active primary wood-using mills in Michigan, 1977, 1984, 1988, 1992, 1994, 1996*

Table 2.—*Industrial roundwood receipts by mill type in Michigan, 1977, 1984, 1988, 1990, 1992, 1994, 1996*

Table 3.—*Industrial roundwood production by Forest Survey Unit, species group, and type of product, Michigan, 1996*

Table 4.—*Pulpwood production by year, product form, and species group, Michigan, 1946-1996*

Table 5.—*Pulpwood production by product form, species group, and destination, Michigan, 1996*

Table 6.—*Pulpwood production from roundwood by Forest Survey Unit, county, and species group, Michigan, 1996*

Table 7.—*Pulpwood receipts by year, product form, and species group, Michigan, 1946-1996*

Table 8.—*Pulpwood receipts by year and area of origin, Michigan, 1946-1996*

Table 9.—*Pulpwood receipts by product form, species group, and area of origin, Michigan, 1996*

Table 10.—*Saw log production and receipts by species group, Michigan, 1994 and 1996*

Table 11.—*Saw log production by Forest Survey Unit, species group, and destination, Michigan, 1996*

Table 12.—*Saw log production by Forest Survey Unit, county, and species group, Michigan, 1996*

Table 13.—*Saw log receipts by Forest Survey Unit, species group, and State of origin, Michigan, 1996*

Table 14.—*Veneer log and bolt production and receipts in Michigan for selected years, 1946-1996*

Table 15.—*Veneer log and bolt production and receipts by species group, Michigan, 1994 and 1996*

Table 16.—*Veneer log and bolt production by Forest Survey Unit, species group, and destination, Michigan, 1996*

Table 17.—*Veneer log and bolt receipts by area of origin, for selected years, Michigan, 1946-1996*

Table 18.—*Veneer log and bolt receipts by species group and area of origin, Michigan, 1996*

Table 19.—*Wood material harvested for industrial roundwood by Forest Survey Unit, species group, and source of material, Michigan, 1996*

Table 20.—*Growing-stock removals from timberland for industrial roundwood by Forest Survey Unit, county, and species group, Michigan, 1996*

Table 21.—*Sawtimber removals from timberland for industrial roundwood by Forest Survey Unit, county, and species group, Michigan, 1996*

Table 22.—*Harvest residues generated by industrial roundwood harvesting by Forest Survey Unit, county, and species group, Michigan, 1996*

Table 23.—*Residues produced at primary wood-using mills by Forest Survey Unit, type of use, and residue type, Michigan, 1996*

TABLES

Table 1.--Number of active primary wood-using mills in Michigan, 1977, 1984, 1988, 1992, 1994, 1996

Kind of mill	1977	1984	1988	1990	1992	1994	1996
Sawmills[1]							
Large[2]	20	26	31	26	30	36	30
Medium[3]	86	94	117	103	107	99	96
Small[4]	196	176	136	171	139	109	147
Total	302	296	284	300	276	244	273
Pulp mills[5]	8	9	12	12	11	11	12
Veneer mills	9	8	8	8	7	5	4
Other mills	19	26	32	35	23	24	29
Total	36	43	52	55	41	40	45
Total mills	338	339	336	355	317	284	318

[1] *Mills persistently sawing 50 mbf or more annually.*
(35 mills sawed under 50 mbf/year in 1996)
[2] *Annual lumber production in excess of 5 million board feet.*
[3] *Annual lumber production from 1 million to 5 million board feet.*
[4] *Annual lumber production less than 1 million board feet.*
[5] *Includes flake board plants after 1977, formerly reported in "other mills" category.*

Table 2.--Industrial roundwood receipts by mill type in Michigan, 1977, 1984, 1988, 1990, 1992, 1994, 1996

(In million cubic feet)

Kind of mill	1977	1984	1988	1990	1992	1994	1996
			All species				
Pulp mills[1]	82.4	143.2	205.7	214.4	200.6	207.6	222.4
Sawmills	78.7	83.2	98.3	107.4	100.1	99.4	93.7
Other mills[2]	15.0	4.2	6.4	7.1	28.5	27.7	29.1
Total	176.1	230.6	310.4	328.9	329.2	334.6	345.2
			Softwoods				
Pulp mills[1]	28.2	30.4	36.9	41.2	33.1	29.8	37.7
Sawmills	10.5	10.3	18.5	23.3	22.7	21.3	21.8
Other mills[2]	3.4	2.3	0.1	0.7	13.1	8.9	15.8
Total	42.1	43.0	55.5	65.2	68.8	60.0	75.3
			Hardwoods				
Pulp mills[1]	54.2	112.8	168.8	173.2	167.5	177.8	184.7
Sawmills	68.2	72.9	79.8	84.1	77.4	78.0	71.9
Other mills[2]	11.6	1.9	6.3	6.4	15.4	18.8	13.4
Total	134.0	187.6	254.9	263.7	260.4	274.6	270.0

[1] *Includes flakeboard plants after 1977; formerly reported in "other mill" category.*

[2] *Does not include treating plants or fuelwood receipts.*

Table 3.--Industrial roundwood production by Forest Survey Unit, species group, and type of product, Michigan, 1996 [1]

All Units

Species group	Saw logs		Veneer logs		Pulpwood		Cabin logs	Industrial fuelwood		Excelsior/ shaving	Miscel- laneous	Poles		Posts		All products
	MBF [2]	MCF [3]	MBF [2]	MCF [3]	Cords [4]	MCF [3]	MCF [3]	Cords [5]	MCF [3]	MCF [3]	MCF [3]	Pieces	MCF [3]	M pieces	MCF [3]	MCF [3]
Softwoods																
Balsam fir	1,516	285	--	--	65,444	5,170	2	10,005	699	--	--	--	--	43	44	6,200
Redcedar	172	32	--	--	--	--	--	--	--	--	--	--	--	--	--	32
Tamarack	8	1	--	--	6,149	486	--	--	--	--	--	--	--	--	--	487
Spruce	2,260	426	1,042	170	77,527	6,125	33	8,739	611	--	--	--	--	13	13	7,378
Jack pine	15,332	2,887	260	42	249,916	19,743	1	64,051	4,477	--	--	--	--	40	41	27,192
Red pine	99,415	16,672	1,042	170	115,601	9,132	458	79,069	5,527	--	--	39,042	234	40	41	32,234
White pine	8,779	1,472	741	121	7,418	586	233	15,249	1,066	--	--	--	--	--	--	3,477
Other softwoods	--	--	--	--	--	--	--	3,459	242	--	--	--	--	--	--	242
N. white-cedar	7,250	1,365	--	--	8,214	649	432	--	--	--	13	295	2	1,706	1,754	4,215
Hemlock	588	99	--	--	70,936	5,604	15	--	--	--	--	--	--	--	--	5,717
Total	135,319	23,240	3,084	502	601,206	47,495	1,174	180,571	12,622	--	13	39,337	236	1,842	1,893	87,175
Hardwoods																
Soft maple	45,062	7,913	1,107	180	353,036	27,890	--	19,315	1,350	1	--	--	--	--	--	37,334
Hard maple	115,947	18,807	20,280	3,302	423,844	33,484	--	10,162	710	--	--	--	--	--	--	56,302
White birch	9,036	1,587	2,611	425	181,582	14,345	--	4,470	312	--	--	--	--	10	10	16,679
River birch	--	--	67	11	--	--	--	--	--	--	--	--	--	--	--	11
Yellow birch	7,358	1,239	949	154	74,577	5,892	--	--	--	--	--	--	--	--	--	7,285
Hickory	1,947	328	68	11	--	--	--	--	--	--	--	--	--	--	--	339
Hackberry	36	6	--	--	--	--	--	--	--	--	--	--	--	--	--	6
Beech	6,891	1,160	551	90	12,561	992	--	2,769	194	--	--	--	--	--	--	2,436
Ash	16,130	2,716	948	154	40,206	3,176	--	2,520	176	--	--	--	--	--	--	6,223
Butternut	10	2	--	--	--	--	--	--	--	--	--	--	--	--	--	2
Black walnut	1,115	188	371	60	--	--	--	--	--	--	--	--	--	--	--	248
Yellow-poplar	1,168	205	7	1	--	--	--	--	--	--	--	--	--	--	--	206
Sycamore	240	42	--	--	--	--	--	--	--	--	--	--	--	--	--	42
Cottonwood	1,515	266	821	134	237	19	--	--	--	--	--	--	--	--	--	418
Balsam poplar	1,879	330	--	--	58,279	4,604	--	--	--	--	--	--	--	--	--	4,934
Aspen	79,074	13,909	23,293	3,792	913,112	72,136	--	28,567	1,997	527	--	--	--	600	600	92,961
Black cherry	9,039	1,587	991	161	2,980	235	--	--	--	--	--	--	--	--	--	1,984
Red oak group	100,921	17,712	3,835	624	60,509	4,780	--	25,362	1,773	--	--	--	--	--	--	24,889
White oak group	15,101	2,650	853	139	25,690	2,029	--	3,404	238	--	--	--	--	--	--	5,056
Black locust	6	1	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Willow	73	13	--	--	--	--	--	--	--	--	--	--	--	--	--	13
Sassafras	31	6	--	--	--	--	--	--	--	--	--	--	--	--	--	6
Basswood	25,274	4,438	696	113	70,249	5,550	--	--	--	16	--	--	--	10	10	10,127
Elm	609	107	17	3	633	50	--	--	--	--	--	--	--	--	--	160
Other hardwoods	203	36	--	--	15,299	1,209	--	--	--	--	--	--	--	--	--	1,244
Total	438,664	75,247	57,465	9,355	2,232,793	176,391	--	96,571	6,750	544	--	--	--	620	620	268,907
All species	573,983	98,487	60,550	9,858	2,833,999	223,886	1,174	277,143	19,372	544	13	39,337	236	2,462	2,513	356,082

Eastern Upper Peninsula

Species group	Saw logs		Veneer logs		Pulpwood		Cabin logs	Industrial fuelwood		Excelsior/ shaving	Miscel-laneous	Poles		Posts		All products
	MBF [2]	MCF [3]	MBF [2]	MCF [3]	Cords [4]	MCF [3]	MCF [3]	Cords [5]	MCF [3]	MCF [3]	MCF [3]	Pieces	MCF [3]	M pieces	MCF [3]	MCF [3]
Softwoods																
Balsam fir	575	108	–	–	25,056	1,979	–	–	–	–	–	–	–	43	44	2,131
Tamarack	–	–	–	–	2,895	229	–	–	–	–	–	–	–	–	–	229
Spruce	750	141	436	71	26,530	2,096	10	–	–	–	–	–	–	13	13	2,332
Jack pine	1,247	235	168	27	72,800	5,751	–	–	–	–	–	–	–	40	41	6,054
Red pine	5,509	924	670	109	49,835	3,937	341	–	–	–	–	29,992	180	40	41	5,532
White pine	1,336	224	373	61	2,916	230	77	–	–	–	–	–	–	–	–	592
N. white-cedar	3,993	752	–	–	4,043	319	340	–	–	–	12	–	–	957	984	2,407
Hemlock	16	3	–	–	25,183	1,989	–	–	–	–	–	–	–	–	–	1,992
Total	13,426	2,387	1,647	268	209,258	16,531	768	–	–	–	12	29,992	180	1,093	1,124	21,270
Hardwoods																
Soft maple	5,451	957	435	71	85,029	6,717	–	–	–	1	–	–	–	–	–	7,746
Hard maple	18,779	3,046	6,370	1,037	118,118	9,331	–	–	–	–	–	–	–	–	–	13,414
White birch	4,117	723	362	59	59,559	4,705	–	–	–	–	–	–	–	10	10	5,497
Yellow birch	1,367	230	125	20	17,612	1,391	–	–	–	–	–	–	–	–	–	1,642
Beech	1,580	266	392	64	3,448	272	–	–	–	–	–	–	–	–	–	602
Ash	823	139	29	5	8,325	658	–	–	–	–	–	–	–	–	–	801
Butternut	1	*	–	–	–	–	–	–	–	–	–	–	–	–	–	*
Cottonwood	–	–	–	–	1	*	–	–	–	–	–	–	–	–	–	*
Balsam poplar	500	88	–	–	20,582	1,626	–	–	–	–	–	–	–	–	–	1,714
Aspen	8,999	1,583	8,537	1,390	152,090	12,015	–	–	–	527	–	–	–	600	600	16,115
Black cherry	398	70	16	3	1,348	106	–	–	–	–	–	–	–	–	–	179
Red oak group	963	169	103	17	1,960	155	–	–	–	–	–	–	–	–	–	341
White oak group	29	5	2	*	6	*	–	–	–	–	–	–	–	–	–	6
Basswood	1,567	275	43	7	5,999	474	–	–	–	16	–	–	–	10	10	782
Elm	4	1	–	–	24	2	–	–	–	–	–	–	–	–	–	3
Other hardwoods	–	–	–	–	6,130	484	–	–	–	–	–	–	–	–	–	484
Total	44,578	7,552	16,415	2,672	480,232	37,938	–	–	–	544	–	–	–	620	620	49,326
All species	58,004	9,939	18,062	2,941	689,489	54,470	768	–	–	544	12	29,992	180	1,713	1,744	70,596

(Table 3 continued)

Western Upper Peninsula

Species group	Saw logs		Veneer logs		Pulpwood		Cabin logs	Industrial fuelwood		Excelsior/ shaving	Miscel-laneous	Poles		Posts		All products
	MBF [2]	MCF [3]	MBF [2]	MCF [3]	Cords [4]	MCF [3]	MCF [3]	Cords [5]	MCF [3]	MCF [3]	MCF [3]	Pieces	MCF [3]	M pieces	MCF [3]	MCF [3]
Softwoods																
Balsam fir	786	148	–	–	37,535	2,965	–	–	–	–	–	–	–	–	–	3,113
Tamarack	8	1	–	–	3,241	256	–	–	–	–	–	–	–	–	–	257
Spruce	1,308	246	606	99	49,952	3,946	23	–	–	–	–	–	–	–	–	4,314
Jack pine	1,934	364	92	15	72,538	5,730	–	–	–	–	–	–	–	–	–	6,110
Red pine	5,489	921	371	60	30,213	2,387	76	–	–	–	–	–	–	–	–	3,444
White pine	1,740	292	297	48	3,272	258	61	–	–	–	–	–	–	–	–	659
N. white-cedar	1,685	317	–	–	3,918	309	48	–	–	–	2	–	–	236	243	919
Hemlock	475	80	–	–	45,604	3,603	–	–	–	–	–	–	–	–	–	3,682
Total	13,425	2,369	1,367	222	246,272	19,455	208	–	–	–	2	–	–	236	243	22,500
Hardwoods																
Soft maple	8,272	1,452	582	95	118,190	9,337	–	–	–	–	–	–	–	–	–	10,884
Hard maple	34,531	5,601	7,784	1,267	252,268	19,929	–	–	–	–	–	–	–	–	–	26,797
White birch	2,789	490	2,233	364	87,596	6,920	–	–	–	–	–	–	–	–	–	7,773
Yellow birch	5,830	982	793	129	56,645	4,475	–	–	–	–	–	–	–	–	–	5,586
Beech	15	3	*	*	3,500	276	–	–	–	–	–	–	–	–	–	279
Ash	1,758	296	122	20	19,835	1,567	–	–	–	–	–	–	–	–	–	1,883
Butternut	9	2	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Cottonwood	–	–	–	–	64	5	–	–	–	–	–	–	–	–	–	5
Balsam poplar	12	2	–	–	26,556	2,098	–	–	–	–	–	–	–	–	–	2,100
Aspen	12,373	2,176	14,756	2,402	333,602	26,355	–	–	–	–	–	–	–	–	–	30,933
Black cherry	612	108	48	8	1,630	129	–	–	–	–	–	–	–	–	–	244
Red oak group	2,892	508	1,700	277	16,756	1,324	–	–	–	–	–	–	–	–	–	2,108
White oak group	49	9	14	2	664	52	–	–	–	–	–	–	–	–	–	63
Basswood	6,199	1,089	641	104	46,990	3,712	–	–	–	–	–	–	–	–	–	4,905
Elm	27	5	–	–	167	13	–	–	–	–	–	–	–	–	–	18
Other hardwoods	175	31	–	–	6,154	486	–	–	–	–	–	–	–	–	–	517
Total	75,543	12,751	28,672	4,668	970,617	76,679	–	–	–	–	–	–	–	–	–	94,098
All species	88,968	15,121	30,039	4,890	1,216,889	96,134	208	–	–	–	2	–	–	236	243	116,598

Northern Lower Peninsula

Species group	Saw logs		Veneer logs		Pulpwood		Cabin logs	Industrial fuelwood		Excelsior/ shaving	Miscel- laneous	Poles		Posts		All products
	MBF [2]	MCF [3]	MBF [2]	MCF [3]	Cords [4]	MCF [3]	MCF [3]	Cords [5]	MCF [3]	MCF [3]	MCF [3]	Pieces	MCF [3]	M pieces	MCF [3]	MCF [3]
Softwoods																
Balsam fir	155	29	–	–	2,488	197	2	10,005	699	–	–	–	–	–	–	927
Tamarack	–	–	–	–	14	1	–	–	–	–	–	–	–	–	–	1
Spruce	201	38	–	–	958	76	–	8,739	611	–	–	–	–	–	–	724
Jack pine	12,068	2,272	–	–	104,336	8,243	–	64,051	4,477	–	–	–	–	–	–	14,992
Red pine	85,652	14,364	–	–	35,394	2,796	38	79,069	5,527	–	–	9,050	54	–	–	22,779
White pine	5,156	865	71	12	1,230	97	92	15,249	1,066	–	–	–	–	–	–	2,131
Other softwoods	–	–	–	–	–	–	–	3,459	242	–	–	–	–	–	–	242
N. white-cedar	1,572	296	–	–	215	17	44	–	–	–	–	295	2	513	527	886
Hemlock	97	16	–	–	149	12	15	–	–	–	–	–	–	–	–	43
Total	104,901	17,880	71	12	144,785	11,438	190	180,571	12,622	–	–	9,345	56	513	527	42,725
Hardwoods																
Soft maple	21,152	3,714	–	–	136,534	10,786	–	19,315	1,350	–	–	–	–	–	–	15,851
Hard maple	48,552	7,875	2,055	335	51,094	4,036	–	10,162	710	–	–	–	–	–	–	12,956
White birch	2,124	373	16	3	34,308	2,710	–	4,470	312	–	–	–	–	–	–	3,398
Yellow birch	161	27	31	5	320	25	–	–	–	–	–	–	–	–	–	57
Hickory	12	2	13	2	–	–	–	–	–	–	–	–	–	–	–	4
Beech	3,618	609	71	12	5,439	430	–	2,769	194	–	–	–	–	–	–	1,244
Ash	7,553	1,272	485	79	11,785	931	–	2,520	176	–	–	–	–	–	–	2,458
Black walnut	10	2	1	*	–	–	–	–	–	–	–	–	–	–	–	2
Cottonwood	409	72	–	–	–	–	–	–	–	–	–	–	–	–	–	72
Balsam poplar	1,366	240	–	–	10,729	848	–	–	–	–	–	–	–	–	–	1,087
Aspen	54,483	9,584	–	–	405,572	32,040	–	28,567	1,997	–	–	–	–	–	–	43,621
Black cherry	2,039	358	137	22	1	*	–	–	–	–	–	–	–	–	–	380
Red oak group	66,818	11,727	686	112	28,663	2,264	–	25,362	1,773	–	–	–	–	–	–	15,875
White oak group	4,653	817	97	16	11,183	883	–	3,404	238	–	–	–	–	–	–	1,954
Willow	35	6	–	–	–	–	–	–	–	–	–	–	–	–	–	6
Basswood	14,614	2,566	9	1	17,128	1,353	–	–	–	–	–	–	–	–	–	3,921
Elm	56	10	2	*	443	35	–	–	–	–	–	–	–	–	–	45
Other hardwoods	18	3	–	–	2,954	233	–	–	–	–	–	–	–	–	–	237
Total	227,673	39,256	3,601	586	716,152	56,576	–	96,571	6,750	–	–	–	–	–	–	103,169
All species	332,574	57,136	3,672	598	860,937	68,014	190	277,143	19,372	–	–	9,345	56	513	527	145,894

(Table 3 continued on next page)

(Table 3 continued)

Southern Lower Peninsula

Species group	Saw logs		Veneer logs		Pulpwood		Cabin logs	Industrial fuelwood		Excelsior/ shaving	Miscel-laneous	Poles		Posts		All products
	MBF [2]	MCF [3]	MBF [2]	MCF [3]	Cords [4]	MCF [3]	MCF [3]	Cords [5]	MCF [3]	MCF [3]	MCF [3]	Pieces	MCF [3]	M pieces	MCF [3]	MCF [3]
Softwoods																
Balsam fir	–	–	–	–	366	29	–	–	–	–	–	–	–	–	–	29
Redcedar	172	32	–	–	–	–	–	–	–	–	–	–	–	–	–	32
Spruce	1	*	–	–	87	7	–	–	–	–	–	–	–	–	–	7
Jack pine	82	16	–	–	242	19	1	–	–	–	–	–	–	–	–	35
Red pine	2,765	464	–	–	159	13	3	–	–	–	–	–	–	–	–	479
White pine	546	92	–	–	–	–	3	–	–	–	–	–	–	–	–	94
N. white-cedar	–	–	–	–	38	3	–	–	–	–	–	–	–	–	–	3
Total	3,567	603	–	–	892	70	7	–	–	–	–	–	–	–	–	681
Hardwoods																
Soft maple	10,186	1,789	90	15	13,282	1,049	–	–	–	–	–	–	–	–	–	2,853
Hard maple	14,085	2,285	4,071	663	2,366	187	–	–	–	–	–	–	–	–	–	3,134
White birch	7	1	–	–	119	9	–	–	–	–	–	–	–	–	–	11
River birch	–	–	67	11	–	–	–	–	–	–	–	–	–	–	–	11
Hickory	1,935	326	55	9	–	–	–	–	–	–	–	–	–	–	–	335
Hackberry	36	6	–	–	–	–	–	–	–	–	–	–	–	–	–	6
Beech	1,678	283	88	14	175	14	–	–	–	–	–	–	–	–	–	311
Ash	5,996	1,010	313	51	260	21	–	–	–	–	–	–	–	–	–	1,081
Butternut	1	*	–	–	–	–	–	–	–	–	–	–	–	–	–	*
Black walnut	1,105	186	370	60	–	–	–	–	–	–	–	–	–	–	–	246
Yellow-poplar	1,168	205	7	1	–	–	–	–	–	–	–	–	–	–	–	206
Sycamore	240	42	–	–	–	–	–	–	–	–	–	–	–	–	–	42
Cottonwood	1,106	194	821	134	172	14	–	–	–	–	–	–	–	–	–	341
Balsam poplar	1	*	–	–	411	32	–	–	–	–	–	–	–	–	–	33
Aspen	3,219	566	–	–	21,848	1,726	–	–	–	–	–	–	–	–	–	2,292
Black cherry	5,990	1,052	791	129	–	–	–	–	–	–	–	–	–	–	–	1,181
Red oak group	30,247	5,308	1,345	219	13,131	1,037	–	–	–	–	–	–	–	–	–	6,565
White oak group	10,370	1,820	740	121	13,837	1,093	–	–	–	–	–	–	–	–	–	3,034
Black locust	6	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Willow	39	7	–	–	–	–	–	–	–	–	–	–	–	–	–	7
Sassafras	31	6	–	–	–	–	–	–	–	–	–	–	–	–	–	6
Basswood	2,893	508	3	1	131	10	–	–	–	–	–	–	–	–	–	519
Elm	522	92	15	2	–	–	–	–	–	–	–	–	–	–	–	94
Other hardwoods	10	2	–	–	61	5	–	–	–	–	–	–	–	–	–	7
Total	90,870	15,688	8,777	1,429	65,792	5,198	–	–	–	–	–	–	–	–	–	22,314
All species	94,436	16,291	8,777	1,429	66,684	5,268	7	–	–	–	–	–	–	–	–	22,995

[1] *Product volumes converted to standard units of measure using regional conversion factors and to thousand cubic feet using factors from the Michigan Utilization Study of 1980 and other regional utilization studies.*

[2] *Thousand board feet, International 1/4-inch rule.*

[3] *Thousand cubic feet.*

[4] *Standard cords are 128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

[5] *Standard cords are 128 cubic feet consisting of 70 cubic feet of wood and 58 cubic feet of bark and air space.*

** = Less than 1/2 unit of measure.*

Rows and columns may not sum due to rounding.

Table 4.-- Pulpwood production by year, product form, and species group, Michigan, 1946-1996

(In thousand standard cords, unpeeled) [1]

Year	Roundwood									Residue	
	Total	Pine	Balsam fir	Hemlock	Spruce	Cedar & tamarack	Aspen	Birch	Other hardwoods	Soft-woods	Hard-woods
1946	845	85	117	250	127	3	246	9	8	--	--
1947	679	86	139	149	134	2	153	6	10	--	--
1948	728	89	163	132	133	2	182	7	19	--	1
1949	519	38	124	62	97	*	168	5	25	--	--
1950	657	66	123	84	99	*	251	6	28	--	--
1951	935	103	140	169	110	*	371	8	34	--	--
1952	762	58	153	125	120	*	275	8	23	--	--
1953	724	67	102	71	81	*	365	5	33	--	--
1954	797	43	137	62	119	1	404	5	26	--	--
1955	808	38	122	36	111	*	459	4	38	--	--
1956	966	67	119	88	115	*	537	4	36	--	--
1957	980	70	147	61	118	*	521	7	56	--	--
1958	900	149	115	35	86	1	434	1	79	--	--
1959	1,053	197	109	39	83	3	523	4	90	1	4
1960	1,237	188	135	46	108	5	669	9	75	--	2
1961	1,106	156	115	44	96	4	558	16	96	2	19
1962	1,223	184	104	57	86	4	601	21	144	2	20
1963	1,297	174	121	62	88	3	662	23	131	4	29
1964	1,322	198	85	59	72	3	674	38	146	5	42
1965	1,365	224	74	64	65	2	704	32	149	5	46
1966	1,571	251	88	99	74	1	777	12	194	4	71
1967	1,344	193	90	60	75	1	646	11	200	3	65
1968	1,168	205	62	45	39	2	540	13	172	6	84
1969	1,302	207	44	63	39	2	606	23	196	8	114
1970	1,406	239	67	69	51	3	596	33	196	10	142
1971	1,267	235	53	43	45	2	548	23	196	13	109
1972	1,401	229	60	50	38	7	529	36	309	21	122
1973	1,585	204	68	58	46	5	603	59	365	28	149
1974	1,843	259	74	52	40	7	706	85	424	17	179
1975	1,280	235	74	50	45	5	436	36	217	22	160
1976	1,541	281	75	79	32	6	491	69	320	24	164
1977	1,595	262	94	62	48	10	532	62	333	21	171
1978	1,675	277	87	48	42	8	586	90	390	17	130
1979 [2]	1,981	350	85	45	39	10	709	109	456	15	163
1980	1,969	268	109	58	58	13	705	104	501	15	138
1981	1,838	237	104	39	45	17	652	105	473	15	151
1982	1,751	262	105	56	68	22	632	89	396	13	108

1983	2,157	256	101	48	78	31	889	130	451	21	152
1984	2,398	293	78	47	77	24	962	120	607	23	167
1985	2,376	314	93	37	84	53	977	110	545	17	146
1986	2,807	315	96	43	93	56	979	221	812	53	139
1987	2,746	292	98	39	97	68	896	228	799	72	157
1988	2,919	298	118	35	93	36	1,009	259	826	69	176
1989	3,114	254	143	42	115	44	1,104	280	871	79	182
1990	2,982	300	86	56	66	14	1,115	228	851	84	182
1991	3,016	309	103	47	64	16	1,093	188	942	76	176
1992	2,877	363	83	37	70	13	1,033	183	867	74	154
1993	3,155	380	101	37	67	12	1,142	197	973	72	174
1994	3,254	344	103	68	62	16	1,084	212	1,124	72	169
1995	3,112	355	79	66	66	11	1,003	177	1,078	90	188
1996	3,111	373	65	71	78	14	913	256	1,064	88	189

[1] *128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

[2] *Includes logs, bolts, and wood residue used in manufacturing particleboard and waferboard after 1978.*

** = Less than 500 cords.*

Table 5.-- Pulpwood production by product form, species group, and destination, Michigan, 1996

(In thousand standard cords, unpeeled) [1]

Class of material and species group	Total	Destination				
		Michigan	Minnesota	Wisconsin	Canada	Other[3]
Roundwood						
Softwoods						
N. white-cedar	8	8	--	--	--	--
Balsam fir	65	44	4	11	7	--
Hemlock	71	68	--	3	--	--
Jack pine	250	208	--	42	--	--
Red pine	116	86	--	29	--	--
White pine	7	6	--	1	--	--
Spruce	78	20	--	46	12	--
Tamarack	6	6	--	*	--	--
Total	601	446	4	133	18	--
Hardwoods						
Ash	40	38	--	3	--	--
Aspen	913	825	1	87	--	--
Balsam poplar	58	58	--	*	--	--
Basswood	70	67	--	3	--	--
Beech	13	13	--	--	--	--
White birch	182	175	--	6	--	--
Yellow birch	75	74	--	1	--	--
Cottonwood	*	*	--	*	--	--
Elm	1	1	--	*	--	--
Hard maple	424	417	--	7	--	--
Soft maple	353	348	--	5	--	--
Red oak	61	58	--	2	--	--
White oak	26	25	--	1	--	--
Other hardwoods	18	18	--	*	--	--
Total	2,233	2,116	1	116	--	--
Total roundwood	2,834	2,562	5	249	18	--
Residues [2]						
Softwood	88	79	--	2	5	1
Hardwood	189	173	--	16	--	--
Total	277	253	--	18	5	1
All material	3,111	2,815	5	267	23	1

[1] *128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

[2] *Chippable mill residues such as slabs, edgings, etc. Roundwood chips are included in roundwood.*

[3] *Mostly Western States.*

* = *Less than 500 cords.*

Rows and columns may not sum due to rounding.

Table 6.-- Pulpwood production from roundwood by Forest Survey Unit, county, and species group, Michigan, 1996

(In standard cords, unpeeled) [1]

Forest Survey Unit and county	All species	Species group										
		N. white-cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tama-rack	Ash	Aspen	Balsam poplar
Eastern Upper Peninsula												
Alger	105,051	742	4,131	4,643	6,239	4,624	505	8,064	536	1,989	12,988	1,337
Chippewa	110,838	675	4,952	2,860	17,713	11,155	491	3,890	488	577	30,143	6,276
Delta	124,403	824	5,080	4,343	10,515	7,289	561	4,054	596	1,621	27,884	2,539
Luce	66,370	134	1,163	6,423	8,454	7,216	91	2,513	97	998	8,153	497
Mackinac	96,734	338	2,678	1,105	9,107	3,724	220	2,048	182	1,080	30,063	6,171
Menominee	72,474	562	2,997	2,685	2,889	1,432	454	1,550	406	1,020	22,094	2,043
Schoolcraft	113,618	768	4,054	3,124	17,883	14,396	594	4,410	589	1,039	20,765	1,720
Total	689,489	4,043	25,056	25,183	72,800	49,835	2,916	26,530	2,895	8,325	152,090	20,582
Western Upper Peninsula												
Baraga	102,440	170	1,586	13,792	2,440	1,330	297	3,075	123	1,102	22,505	2,482
Dickinson	108,061	682	5,386	2,905	8,018	3,054	477	8,193	504	388	43,696	2,928
Gogebic	88,396	11	1,930	1,303	236	635	23	1,936	58	1,883	19,395	1,156
Houghton	178,830	202	3,003	3,540	5,362	3,258	182	4,041	312	4,532	35,056	3,761
Iron	196,334	866	10,399	4,311	9,728	7,063	709	12,150	808	1,121	58,310	5,484
Keweenaw	28,320	62	560	1,183	275	168	42	1,689	45	311	2,870	9
Marquette	295,125	1,846	12,029	17,194	38,013	13,086	1,324	11,652	1,335	1,170	75,719	6,911
Ontonagon	219,384	78	2,642	1,376	8,464	1,620	218	7,215	57	9,328	76,051	3,826
Total	1,216,889	3,918	37,535	45,604	72,538	30,213	3,272	49,952	3,241	19,835	333,602	26,556
Northern Lower Peninsula												
Alcona	42,138	--	15	--	5,144	129	49	10	--	775	26,646	1,729
Alpena	33,148	39	354	--	1,814	814	9	114	--	606	20,751	529
Antrim	10,133	1	12	--	173	21	--	3	--	229	3,060	74
Arenac	6,025	--	--	--	39	14	--	--	--	129	4,001	111
Bay	1,450	--	--	--	34	73	--	--	--	--	1,168	--
Benzie	9,680	--	--	--	576	576	--	--	--	316	3,473	118
Charlevoix	4,443	--	--	--	96	21	--	--	--	21	972	5
Cheboygan	53,129	34	294	--	9,446	772	91	156	--	302	27,643	297
Clare	34,661	--	--	--	4,385	586	4	--	--	113	19,771	42
Crawford	71,509	2	11	6	16,670	18,149	605	4	1	155	20,922	224
Emmet	31,213	8	62	--	3,491	315	36	15	--	114	11,202	13
Gladwin	22,085	--	--	--	236	60	--	--	--	105	15,760	218
Grand Traverse	13,548	--	--	--	2,483	2,344	--	--	--	128	4,936	89
Iosco	13,153	--	--	--	655	593	--	--	--	111	8,272	255
Isabella	22,536	--	--	--	199	170	--	--	--	173	13,626	163
Kalkaska	20,702	--	--	56	5,132	1,201	42	--	--	168	7,035	132
Lake	19,284	--	--	--	505	47	--	--	--	934	5,523	347

Leelanau	1,090	--	--	--	--	--	--	--	--	24	714	1
Manistee	27,085	--	--	--	8	24	--	--	--	849	9,849	486
Mason	17,507	--	--	--	--	--	--	--	--	402	8,537	255
Mecosta	27,581	--	--	--	541	733	--	--	--	547	13,847	858
Midland	13,956	--	--	--	22	32	--	--	--	258	7,462	166
Missaukee	29,212	3	16	11	1,662	1,302	2	7	2	253	16,636	260
Montmorency	46,788	--	--	--	5,154	496	43	--	--	1,378	28,079	922
Newaygo	25,490	--	--	--	--	--	--	--	--	437	9,615	522
Oceana	11,034	--	--	--	--	--	--	--	--	208	4,877	250
Ogemaw	28,560	--	--	--	9,432	706	68	--	--	275	11,671	221
Osceola	36,953	--	--	--	77	88	--	--	--	690	17,891	912
Oscoda	28,204	--	--	--	8,070	165	81	--	--	333	13,322	322
Otsego	38,371	--	276	--	2,852	603	22	28	--	376	17,706	64
Presque Isle	49,453	82	1,082	76	5,857	1,644	51	534	10	750	23,247	682
Roscommon	50,994	46	366	--	17,320	1,428	128	87	--	306	18,999	171
Wexford	19,821	--	--	--	2,264	2,289	--	--	--	319	8,361	291
Total	860,937	215	2,488	149	104,336	35,394	1,230	958	14	11,785	405,572	10,729
Southern Lower Peninsula												
Allegan	14,360	--	--	--	--	--	--	--	--	--	3,244	10
Barry	1,130	--	--	--	--	--	--	--	--	--	272	--
Berrien	583	--	--	--	--	--	--	--	--	--	131	--
Branch	2,104	--	--	--	--	--	--	--	--	--	472	--
Calhoun	1,081	--	--	--	--	--	--	--	--	--	236	23
Cass	1,244	--	--	--	--	--	--	--	--	--	279	--
Gratiot	5,884	--	--	--	--	--	--	--	--	130	2,865	204
Huron	20	--	--	--	--	--	--	--	--	--	20	--
Kalamazoo	1,497	--	--	--	--	--	--	--	--	--	429	20
Kent	7,240	38	366	--	--	--	--	87	--	44	2,317	71
Montcalm	8,285	--	--	--	229	--	--	--	--	87	4,388	82
Muskegon	7,514	--	--	--	--	--	--	--	--	--	2,001	--
Ottawa	3,506	--	--	--	--	--	--	--	--	--	1,043	--
Saginaw	33	--	--	--	--	--	--	--	--	--	18	--
Sanilac	1,351	--	--	--	13	130	--	--	--	--	796	--
St Joseph	2,156	--	--	--	--	--	--	--	--	--	470	--
Tuscola	1,246	--	--	--	--	29	--	--	--	--	1,195	--
Van Buren	7,449	--	--	--	--	--	--	--	--	--	1,671	--
Total	66,684	38	366	--	242	159	--	87	--	260	21,848	411
State total	2,833,999	8,214	65,444	70,936	249,916	115,601	7,418	77,527	6,149	40,206	913,112	58,279

(Table 6 continued on next page)

(Table 6 continued)

Forest Survey Unit and county	Species group										
	Bass-wood	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hard maple	Soft maple	Red oak group	White oak group	Other hardwoods
Eastern Upper Peninsula											
Alger	1,138	517	10,173	3,274	--	2	26,019	16,162	381	--	1,587
Chippewa	548	628	7,216	1,244	--	1	9,119	11,998	342	--	522
Delta	1,227	623	12,677	4,073	--	5	23,512	15,097	340	--	1,543
Luce	536	253	5,285	1,673	--	1	13,058	8,847	190	--	788
Mackinac	828	465	8,454	2,224	--	7	14,700	12,216	243	--	880
Menominee	894	251	8,424	2,634	1	4	12,996	8,143	198	6	788
Schoolcraft	827	712	7,330	2,490	--	3	18,713	12,567	266	--	1,371
Total	5,999	3,448	59,559	17,612	1	24	118,118	85,029	1,960	6	7,478
Western Upper Peninsula											
Baraga	2,875	456	8,597	5,181	--	16	22,569	11,476	1,418	64	886
Dickinson	1,702	160	7,186	4,668	3	22	11,240	5,532	884	34	398
Gogebic	3,628	4	10,613	5,446	16	49	25,073	10,761	3,319	273	647
Houghton	10,303	428	16,157	11,375	3	20	50,910	21,920	3,235	83	1,148
Iron	4,260	542	15,683	9,826	5	25	34,318	16,930	2,460	98	1,237
Keweenaw	1,092	--	3,962	2,765	--	1	8,875	3,496	754	6	155
Marquette	3,899	1,880	18,160	10,188	1	18	46,937	28,722	2,059	35	2,944
Ontonagon	19,231	28	7,237	7,196	36	16	52,347	19,354	2,626	70	368
Total	46,990	3,500	87,596	56,645	64	167	252,268	118,190	16,756	664	7,784
Northern Lower Peninsula											
Alcona	196	117	2,212	--	--	--	478	4,449	187	--	--
Alpena	131	126	1,596	1	--	3	524	5,558	128	30	21
Antrim	297	127	1,011	4	--	18	1,558	2,538	714	171	122
Arenac	11	23	495	--	--	1	142	975	58	15	10
Bay	--	--	78	--	--	--	--	98	--	--	--
Benzie	264	111	594	10	--	28	855	1,159	1,136	271	193
Charlevoix	1,304	40	67	--	--	1	1,382	467	49	11	7
Cheboygan	782	155	2,071	5	--	2	1,096	9,499	446	21	17
Clare	76	40	922	40	--	10	2,283	5,515	581	227	68
Crawford	523	227	2,078	37	--	--	2,793	6,522	2,555	26	--
Emmet	2,302	209	1,931	1	--	3	1,857	9,494	116	28	19
Gladwin	86	17	989	37	--	6	948	3,563	22	35	2
Grand Traverse	422	45	574	4	--	11	578	1,285	460	110	78
Iosco	74	25	1,108	1	--	4	225	1,622	147	35	25
Isabella	52	40	240	--	--	--	3,458	4,402	--	13	--
Kalkaska	728	101	513	22	--	11	1,491	3,145	735	111	79
Lake	629	330	1,452	24	--	84	1,760	2,912	3,362	803	572

Leelanau	27	1	27	--	--	--	97	192	6	1	--
Manistee	824	348	1,667	27	--	69	3,533	4,218	2,989	1,727	467
Mason	448	325	1,161	20	--	32	1,576	2,066	1,453	1,013	220
Mecosta	335	238	262	3	--	10	3,605	4,899	620	1,013	70
Midland	167	219	632	6	--	16	1,064	2,923	642	243	104
Missaukee	237	149	1,111	8	--	19	1,410	4,941	745	319	120
Montmorency	1,574	207	1,657	--	--	--	728	6,436	114	--	--
Newaygo	311	307	476	8	--	28	4,194	5,958	1,952	1,492	189
Oceana	134	438	400	7	--	11	952	1,704	1,044	934	74
Ogemaw	80	58	815	2	--	6	538	2,504	1,977	163	42
Osceola	432	486	805	29	--	23	4,947	7,278	1,300	1,837	157
Oscoda	352	85	1,297	1	--	2	437	2,873	839	16	10
Otsego	3,518	432	1,966	3	--	1	3,921	6,349	173	71	10
Presque Isle	104	144	2,092	--	--	--	541	12,307	247	1	--
Roscommon	293	149	1,263	6	--	20	977	6,089	3,017	193	138
Wexford	415	122	744	11	--	21	1,146	2,596	848	253	143
Total	17,128	5,439	34,308	320	--	443	51,094	136,534	28,663	11,183	2,955
Southern Lower Peninsula											
Allegan	--	--	--	--	43	--	--	3,046	3,853	4,165	--
Barry	--	--	--	--	--	--	--	236	299	324	--
Berrien	--	--	--	--	--	--	--	125	157	170	--
Branch	--	--	--	--	--	--	--	449	568	614	--
Calhoun	--	--	--	--	--	--	--	225	285	312	--
Cass	--	--	--	--	--	--	--	266	336	363	--
Gratiot	129	--	--	--	64	--	1,085	1,407	--	--	--
Huron	--	--	--	--	--	--	--	--	--	--	--
Kalamazoo	--	45	--	--	--	--	--	245	362	395	--
Kent	2	50	12	--	--	--	296	1,288	1,354	1,314	--
Montcalm	--	79	11	--	64	--	904	1,461	540	439	--
Muskegon	--	--	--	--	--	--	37	1,494	1,956	2,027	--
Ottawa	--	--	--	--	--	--	43	666	843	911	--
Saginaw	--	--	--	--	--	--	--	--	--	15	--
Sanilac	--	--	96	--	--	--	--	316	--	--	--
St Joseph	--	--	--	--	--	--	--	447	566	612	61
Tuscola	--	--	--	--	--	--	--	22	--	--	--
Van Buren	--	--	--	--	--	--	--	1,590	2,012	2,175	--
Total	131	175	119	--	172	--	2,366	13,282	13,131	13,837	61
State total	70,249	12,561	181,582	74,577	237	633	423,844	353,036	60,509	25,690	18,279

[1] *128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

Rows and columns may not sum due to rounding.

Table 7.--Pulpwood receipts by year, product form, and species group, Michigan, 1946-1996

(In thousand standard cords, unpeeled) [1]

	Roundwood									Residue	
Year	Total	Pine	Balsam fir	Hemlock	Spruce	Cedar & tamarack	Aspen	Birch	Other hardwoods	Soft-woods	Hard-woods
1946	416	85	38	81	133	2	69	*	8	--	--
1947	444	141	60	64	118	1	50	1	9	--	--
1948	485	132	76	46	132	1	78	--	19	--	1
1949	258	53	45	7	88	--	40	*	25	--	--
1950	383	66	60	40	101	--	87	1	28	--	--
1951	582	134	81	100	108	--	126	*	33	--	--
1952	449	80	68	60	116	--	102	1	22	--	--
1953	451	75	54	45	102	--	142	--	33	--	--
1954	412	37	53	*	97	--	198	--	27	--	--
1955	455	20	53	2	102	--	240	--	38	--	--
1956	535	31	61	*	92	--	323	--	28	--	--
1957	533	48	83	2	90	--	264	1	45	--	--
1958	549	107	70	*	73	--	234	--	65	--	--
1959	699	116	70	1	94	--	336	--	81	--	1
1960	810	128	85	2	94	--	431	5	65	--	--
1961	700	109	68	*	75	--	351	6	91	--	--
1962	679	97	35	--	29	--	387	14	117	--	--
1963	742	84	49	--	78	--	399	9	123	--	--
1964	791	107	40	*	68	*	429	18	127	--	2
1965	825	114	35	4	71	--	436	29	118	--	18
1966	1,004	143	44	5	78	--	526	8	159	--	41
1967	774	117	46	2	81	--	323	6	161	--	38
1968	774	133	35	3	61	--	328	11	147	--	56
1969	771	116	19	2	16	--	358	22	152	--	86
1970	805	152	26	3	22	--	332	28	154	11	77
1971	700	115	19	2	17	*	298	22	165	1	61
1972	931	127	27	22	14	7	322	35	282	9	86
1973	1,199	135	37	36	14	4	404	64	351	12	142
1974	1,324	156	33	29	12	6	482	77	369	9	151
1975	844	167	18	23	7	4	288	33	171	8	125
1976	1,115	213	21	56	11	5	327	53	258	17	154
1977	1,233	208	51	62	25	10	370	48	269	17	173
1978	1,332	218	54	51	20	8	423	71	311	21	155
1979 [2]	1,490	222	47	46	13	10	527	85	343	13	184
1980	1,493	202	51	52	28	12	525	73	393	11	146
1981	1,448	188	67	37	22	15	486	85	383	14	151
1982	1,387	216	69	52	44	19	493	73	305	11	105

1983	1,787	204	63	46	51	27	746	114	371	17	148
1984	2,000	234	46	46	37	22	833	103	494	14	171
1985	2,264	264	64	34	57	52	819	103	686	20	165
1986	2,630	268	80	40	71	55	811	272	822	54	157
1987	2,610	239	89	35	68	67	783	276	809	73	171
1988	2,925	231	108	33	61	35	947	323	936	63	188
1989	3,073	179	129	40	76	43	1,073	362	908	68	195
1990	2,913	230	79	43	13	12	1,068	304	879	76	209
1991	2,979	247	94	47	15	15	1,026	262	994	80	198
1992	2,801	288	69	35	14	12	957	244	920	81	181
1993	3,145	295	86	35	20	12	1,109	267	1,048	83	190
1994	3,254	245	79	67	18	15	1,084	271	1,204	93	178
1995	3,056	275	58	68	14	10	942	228	1,156	90	215
1996	3,105	320	46	75	21	15	923	304	1,111	91	199

[1] *128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

[2] *Includes logs, bolts, and wood residue used in manufacturing particleboard and waferboard after 1978.*

** = Less than 500 cords.*

Rows and columns may not sum due to rounding.

Table 8.-- Pulpwood receipts by year and area of origin, Michigan, 1946-1996

(In thousand standard cords, unpeeled) [1]

Year	All areas	Area of origin				
		Michigan	Wisconsin	Minnesota	Other U.S.	Canada
1946	416	259	--	12	--	145
1947	444	239	42	21	--	142
1948	485	271	--	22	1	191
1949	258	130	--	3	*	125
1950	383	258	--	3	--	122
1951	582	398	4	9	1	170
1952	449	290	5	1	2	151
1953	451	319	11	11	*	110
1954	412	309	*	4	*	99
1955	455	356	--	5	--	94
1956	535	437	--	7	--	91
1957	533	427	--	9	--	97
1958	549	458	--	7	--	84
1959	699	603	3	7	--	86
1960	810	727	*	*	--	83
1961	700	628	1	--	--	71
1962	679	677	1	1	--	--
1963	742	669	2	--	--	71
1964	791	730	2	--	--	59
1965	825	750	1	--	--	74
1966	1,004	902	3	*	2	97
1967	774	685	*	*	4	85
1968	774	702	4	*	7	61
1969	771	751	9	--	9	2
1970	805	784	10	*	10	1
1971	700	689	*	*	11	*
1972	931	917	3	*	11	--
1973	1,199	1,131	55	*	13	--
1974	1,324	1,290	25	*	9	--
1975	844	815	19	--	10	--
1976	1,115	1,081	24	--	7	3
1977	1,233	1,159	65	--	9	--
1978	1,332	1,248	70	--	10	4
1979 [2]	1,490	1,428	46	--	14	2
1980	1,493	1,443	35	--	12	3
1981	1,448	1,402	26	--	16	4
1982	1,387	1,340	28	--	16	3

1983	1,787	1,747	23	--	17	--
1984	2,000	1,934	45	--	18	3
1985	2,058	1,973	64	--	17	4
1986	2,631	2,429	177	*	16	9
1987	2,611	2,420	161	--	19	11
1988	2,855	2,597	233	2	22	1
1989	3,073	2,777	272	2	22	--
1990	2,913	2,645	243	1	21	3
1991	2,979	2,687	274	--	15	2
1992	2,801	2,532	253	--	16	--
1993	3,146	2,859	244	--	15	28
1994	3,254	2,915	241	11	15	72
1995	3,056	2,733	231	4	14	74
1996	3,105	2,815	218	--	13	59

[1] *128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

[2] *Includes logs, bolts, and wood residue used in manufacturing particleboard and waferboard after 1978.*

** = Less than 500 cords.*

Rows and columns may not sum due to rounding.

Table 9. -- Pulpwood receipts by product form, species group, and area of origin, Michigan 1996

(In thousand standard cords, unpeeled) [1]

Product form, species group	Total receipts	Area of origin				
		Michigan	Minnesota	Wisconsin	Other U.S.[3]	Canada
Roundwood						
Softwoods						
N. white-cedar	9	8	--	*	--	*
Balsam fir	46	44	--	2	--	*
Hemlock	75	68	--	7	--	*
Jack pine	220	208	--	12	--	*
Red pine	94	86	--	8	--	*
White pine	7	6	--	*	--	*
Spruce	21	20	--	1	--	*
Tamarack	6	6	--	*	--	*
Total	477	446	--	30	--	1
Hardwoods						
Ash	44	38	--	7	--	*
Aspen	923	825	--	45	--	53
Balsam poplar	63	58	--	5	--	*
Basswood	76	67	--	9	--	*
Beech	13	13	--	*	--	*
White birch	219	175	--	43	--	1
Yellow birch	85	74	--	11	--	*
Cottonwood	*	*	--	--	--	--
Elm	1	1	--	*	--	*
Hard maple	438	417	--	20	--	2
Soft maple	362	348	--	13	--	1
Red oak	69	58	--	11	--	--
White oak	25	25	--	--	--	--
Other hardwoods	19	18	--	1	--	--
Total	2,338	2,116	--	165	--	57
All roundwood	2,815	2,562	--	195	--	58
Residues[2]						
Softwood	91	79	--	11	--	*
Hardwood	199	173	--	12	13	1
Total	290	253	--	23	13	1
Total all wood material	3,105	2,815	--	218	13	59

[1] *128 cubic feet consisting of 79 cubic feet of wood and 49 cubic feet of bark and air space.*

[2] *Chippable mill residues such as slabs, edgings, etc. Roundwood chips are included in roundwood.*

[3] *Mostly Western States.*

** = Less than 500 standard cords, unpeeled.*

Rows and columns may not sum due to rounding.

Table 10.-- Saw log production and receipts by species group, Michigan, 1994 and 1996

(In thousand board feet) [1]

Species group	Production			Receipts		
	1994	1996	Change	1994	1996	Change
Softwoods						
N. white-cedar	13,601	7,250	-6,351	13,592	7,387	-6,205
Balsam fir	553	1,516	963	415	1,510	1,095
Hemlock	4,594	588	-4,006	4,315	332	-3,983
Jack pine	11,684	15,332	3,648	6,389	9,853	3,464
Red pine	93,261	99,415	6,154	88,334	93,923	5,589
White pine	14,019	8,779	-5,240	11,563	7,998	-3,565
Redcedar	162	172	10	162	172	10
Spruce	5,062	2,260	-2,802	4,191	1,710	-2,481
Tamarack	52	8	-44	21	4	-17
Total	142,988	135,319	-7,669	128,982	122,890	-6,092
Hardwoods						
Ash	25,689	16,130	-9,559	23,521	14,554	-8,967
Aspen	106,067	79,074	-26,993	97,434	73,344	-24,090
Balsam poplar	152	1,879	1,727	135	1,867	1,732
Basswood	28,924	25,274	-3,650	23,762	21,846	-1,916
Beech	11,501	6,891	-4,610	10,837	6,417	-4,420
White birch	9,852	9,036	-816	6,802	5,300	-1,502
Yellow birch	9,642	7,358	-2,284	8,489	4,578	-3,911
Cottonwood	3,212	1,515	-1,697	2,931	1,201	-1,730
Elm	796	609	-187	467	419	-48
Hickory	2,337	1,947	-390	1,347	1,506	159
Hard maple	107,324	115,947	8,623	97,877	42,279	-55,598
Soft maple	67,946	45,062	-22,884	64,564	112,798	48,234
Red oak group	106,183	100,921	-5,262	102,066	97,833	-4,233
White oak group	21,377	15,101	-6,276	19,023	13,290	-5,733
Hackberry	610	36	-574	610	--	-610
Butternut	--	10	10	--	--	0
Yellow-poplar	1,735	1,168	-567	353	168	-185
Sycamore	832	240	-592	27	--	-27
Black cherry	9,357	9,039	-318	8,265	8,348	83
Sassafras	--	31	31	--	--	0
Willow	184	73	-111	184	73	-111
Black walnut	1,397	1,115	-282	633	575	-58
Other hardwoods	157	203	46	--	190	190
Total	515,274	438,664	-76,610	469,327	406,584	-62,743
All species	658,262	573,983	-84,279	598,309	529,474	-68,835

[1] *International 1/4-inch rule.*

Table 11. -- Saw log production by Forest Survey Unit, species group, and destination, Michigan, 1996

(In thousand board feet) [1]

All Units

Species group	Total	Destination					
		Indiana	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Balsam fir	1,516	--	1,306	--	210	--	--
Redcedar	172	--	172	--	--	--	--
Tamarack	8	--	4	--	4	--	--
Spruce	2,260	--	1,488	16	756	--	--
Jack pine	15,332	--	9,853	--	1,957	--	3,521
Red pine	99,415	--	93,804	105	5,506	--	--
White pine	8,779	--	7,975	144	661	--	--
N. white-cedar	7,250	--	6,922	--	327	--	--
Hemlock	588	--	326	--	262	--	--
Total	135,319	--	121,851	265	9,682	--	3,521
Hardwoods							
Soft maple	45,062	1,356	41,300	--	2,383	15	8
Hard maple	115,947	1,328	107,808	--	6,775	29	7
White birch	9,036	--	4,180	--	3,114	--	1,742
Yellow birch	7,358	--	4,242	--	2,580	--	536
Hickory	1,947	452	1,495	--	--	--	--
Hackberry	36	36	--	--	--	--	--
Beech	6,891	428	6,417	--	30	7	8
Ash	16,130	1,152	14,281	--	654	43	--
Butternut	10	1	--	--	9	--	--
Black walnut	1,115	538	569	--	--	7	--
Yellow-poplar	1,168	991	163	--	--	14	--
Sycamore	240	233	--	--	--	7	--
Cottonwood	1,515	298	1,201	--	8	8	--
Balsam poplar	1,879	--	1,867	--	12	--	--
Aspen	79,074	3	72,211	108	6,752	--	--
Black cherry	9,039	578	8,246	--	209	7	--
Red oak group	100,921	3,726	94,497	--	1,755	100	843
White oak group	15,101	1,404	13,235	--	91	146	225
Black locust	6	6	--	--	--	--	--
Willow	73	--	73	--	--	--	--
Sassafras	31	31	--	--	--	--	--
Basswood	25,274	428	21,637	--	3,205	--	4
Elm	609	182	419	--	9	--	--
Other hardwoods	203	1	190	--	--	--	12
Total	438,664	13,170	394,031	108	27,585	383	3,386
All species	573,983	13,170	515,881	373	37,267	383	6,908

Eastern Upper Peninsula

Species group	Total	Destination					
		Indiana	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Balsam fir	575	--	570	--	5	--	--
Spruce	750	--	529	--	221	--	--
Jack pine	1,247	--	1,174	--	73	--	--
Red pine	5,509	--	4,665	--	844	--	--
White pine	1,336	--	1,100	--	236	--	--
N. white-cedar	3,993	--	3,907	--	87	--	--
Hemlock	16	--	16	--	--	--	--
Total	13,426	--	11,961	--	1,465	--	--
Hardwoods							
Soft maple	5,451	--	5,262	--	188	--	2
Hard maple	18,779	--	18,540	--	236	--	3
White birch	4,117	--	1,311	--	1,256	--	1,550
Yellow birch	1,367	--	827	--	7	--	533
Beech	1,580	--	1,554	--	18	--	7
Ash	823	--	724	--	98	--	--
Butternut	1	--	--	--	1	--	--
Balsam poplar	500	--	500	--	--	--	--
Aspen	8,999	--	8,295	--	705	--	--
Black cherry	398	--	383	--	15	--	--
Red oak group	963	--	584	--	379	--	--
White oak group	29		--		29		
Basswood	1,567	--	1,414	--	153	--	*
Elm	4	--	4	--	--	--	--
Total	44,578	--	39,399	--	3,085	--	2,094
All species	58,004	--	51,360	--	4,550	--	2,094

(Table 11 continued on next page)

(Table 11 continued)

Western Upper Peninsula

Species group	Total	Destination					
		Indiana	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Balsam fir	786	--	582	--	204	--	--
Tamarack	8	--	4	--	4	--	--
Spruce	1,308	--	756	16	536	--	--
Jack pine	1,934	--	50	--	1,884	--	--
Red pine	5,489	--	722	105	4,662	--	--
White pine	1,740	--	1,172	144	424	--	--
N. white-cedar	1,685	--	1,444	--	241	--	--
Hemlock	475	--	213	--	262	--	--
Total	13,425	--	4,943	265	8,217	--	--
Hardwoods							
Soft maple	8,272	--	6,077	--	2,195	--	--
Hard maple	34,531	--	28,010	--	6,522	--	--
White birch	2,789	--	931	--	1,858	--	--
Yellow birch	5,830	--	3,258	--	2,572	--	--
Beech	15	--	3	--	12	--	--
Ash	1,758	--	1,207	--	551	--	--
Butternut	9	--	--		9		
Balsam poplar	12	--	--	--	12	--	--
Aspen	12,373	--	6,223	108	6,042	--	--
Black cherry	612	--	419	--	194	--	--
Red oak group	2,892	--	1,572	--	1,321	--	--
White oak group	49	--	10	--	39	--	--
Basswood	6,199	--	3,167	--	3,031	--	--
Elm	27	--	21	--	5	--	--
Other hardwoods	175	--	175	--	--	--	
Total	75,543	--	51,072	108	24,363	--	--
All species	88,968	--	56,015	373	32,580	--	--

Northern Lower Peninsula

Species group	Total	Destination					
		Indiana	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Balsam fir	155	--	155	--	--	--	--
Spruce	201	--	201	--	--	--	--
Jack pine	12,068	--	8,547	--	--	--	3,521
Red pine	85,652	--	85,652	--	--	--	--
White pine	5,156	--	5,156	--	--	--	--
N. white-cedar	1,572	--	1,572	--	--	--	--
Hemlock	97	--	97	--	--	--	--
Total	104,901	--	101,380	--	--	--	3,521
Hardwoods							
Soft maple	21,152	--	21,146	--	--	--	7
Hard maple	48,552	--	48,547	--	--	--	4
White birch	2,124	--	1,931	--	--	--	193
Yellow birch	161	--	157	--	--	--	3
Hickory	12	--	12	--	--	--	--
Beech	3,618	--	3,617	--	--	--	1
Ash	7,553	--	7,553	--	--	--	--
Black walnut	10	--	10	--	--	--	--
Cottonwood	409	--	409	--	--	--	--
Balsam poplar	1,366	--	1,366	--	--	--	--
Aspen	54,483	--	54,483	--	--	--	--
Black cherry	2,039	--	2,039	--	--	--	--
Red oak group	66,818	--	66,077	--	--	--	741
White oak group	4,653	--	4,476	--	--	--	177
Willow	35	--	35	--	--	--	--
Basswood	14,614	--	14,611	--	--	--	4
Elm	56	--	56	--	--	--	--
Other hardwoods	18	--	15	--	--	--	3
Total	227,673	--	226,539	--	--	--	1,133
All species	332,574	--	327,919	--	--	--	4,655

(Table 11 continued on next page)

(Table 11 continued)

Southern Lower Peninsula

Species group	Total	Destination					
		Indiana	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Redcedar	172	--	172	--	--	--	--
Spruce	1		1				
Jack pine	82	--	82	--	--	--	--
Red pine	2,765	--	2,765	--	--	--	--
White pine	546	--	546	--	--	--	--
Total	3,567	--	3,567	--	--	--	--
Hardwoods							
Soft maple	10,186	1,356	8,816	--	--	15	--
Hard maple	14,085	1,328	12,711	--	17	29	--
White birch	7	--	7	--	--	--	--
Hickory	1,935	452	1,483	--	--	--	--
Hackberry	36	36	--	--	--	--	--
Beech	1,678	428	1,243	--	--	7	--
Ash	5,996	1,152	4,797	--	4	43	--
Butternut	1	1	--	--	--	--	--
Black walnut	1,105	538	560	--	--	7	--
Yellow-poplar	1,168	991	163	--	--	14	--
Sycamore	240	233	--	--	--	7	--
Cottonwood	1,106	298	792	--	8	8	--
Balsam poplar	1	--	1		--	--	--
Aspen	3,219	3	3,211	--	5	--	--
Black cherry	5,990	578	5,404	--	1	7	--
Red oak group	30,247	3,726	26,264	--	55	100	102
White oak group	10,370	1,404	8,749	--	23	146	48
Black locust	6	6	--		--	--	--
Willow	39	--	39	--	--	--	--
Sassafras	31	31	--		--	--	--
Basswood	2,893	428	2,445	--	21	--	--
Elm	522	182	337	--	3	--	--
Other hardwoods	10	1	--	--	--	--	9
Total	90,870	13,170	77,021	--	137	383	159
All species	94,436	13,170	80,588	--	137	383	159

[1] *International 1/4-inch rule.*

* *= Less than 500 board feet*

Rows and columns may not sum due to rounding.

Table 12.--Saw log production by Forest Survey Unit, county, and species group, Michigan, 1996

(In thousand board feet) [1]

Forest Survey Unit and county	Balsam fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	N. white-cedar	Hem-lock	Total soft-woods	Soft maple	Hard maple	White birch	Yellow birch	Hickory	Hack-berry
Eastern Upper Peninsula																
Alger	48	--	--	51	33	477	124	99	1	833	846	3,517	611	401	--	--
Chippewa	67	--	--	202	--	984	114	325	--	1,691	536	1,871	265	68	--	--
Delta	82	--	--	101	1,046	537	153	1,218	9	3,147	713	2,073	752	243	--	--
Luce	2	--	--	32	150	342	253	95	1	875	1,181	3,405	294	178	--	--
Mackinac	67	--	--	128	--	2,241	75	574	--	3,085	884	2,794	963	127	--	--
Menominee	261	--	--	157	10	235	417	672	5	1,757	564	1,436	654	82	--	--
Schoolcraft	47	--	--	80	7	694	199	1,010	--	2,037	728	3,682	578	267	--	--
Total	575	--	--	750	1,247	5,509	1,336	3,993	16	13,426	5,451	18,779	4,117	1,367	--	--
Western Upper Peninsula																
Baraga	59	--	--	148	137	58	126	228	92	847	1,375	6,615	281	1,595	--	--
Dickinson	64	--	--	63	125	178	116	175	1	721	168	806	385	29	--	--
Gogebic	169	--	4	402	259	1,440	239	111	163	2,786	728	5,353	28	685	--	--
Houghton	69	--	--	124	180	866	127	147	104	1,616	1,781	6,659	171	829	--	--
Iron	138	--	4	217	247	304	170	79	57	1,216	1,108	5,106	961	1,734	--	--
Keweenaw	31	--	--	76	--	6	164	479	--	756	541	1,338	197	187	--	--
Marquette	129	--	--	178	953	466	765	404	4	2,899	1,571	4,105	720	350	--	--
Ontonagon	129	--	--	102	33	2,171	33	63	54	2,584	1,000	4,548	47	423	--	--
Total	786	--	8	1,308	1,934	5,489	1,740	1,685	475	13,425	8,272	34,531	2,789	5,830	--	--
Northern Lower Peninsula																
Alcona	4	--	--	13	373	1,764	212	11	--	2,377	662	385	103	3	--	--
Alpena	10	--	--	21	93	549	409	318	--	1,399	963	300	245	--	--	--
Antrim	--	--	--	1	1	743	10	6	--	761	505	3,823	43	1	--	--
Arenac	--	--	--	--	21	249	19	--	--	288	300	104	19	--	--	--
Bay	--	--	--	--	--	--	--	--	--	--	92	29	3	--	--	--
Benzie	--	--	--	1	1	3,014	5	--	28	3,047	293	2,737	12	6	--	--
Charlevoix	41	--	--	43	--	1,057	95	300	--	1,535	269	3,472	460	110	--	--
Cheboygan	21	--	--	24	299	2,859	355	242	--	3,799	406	2,354	104	2	--	--
Clare	--	--	--	--	213	2,575	94	4	--	2,886	2,003	520	16	--	4	--
Crawford	--	--	--	3	2,458	3,709	277	4	1	6,451	170	242	12	--	--	--
Emmet	21	--	--	21	--	2,495	37	100	--	2,674	355	3,576	132	1	--	--
Gladwin	--	--	--	--	23	641	52	--	--	715	961	283	41	--	--	--
Grand Traverse	--	--	--	--	48	5,111	68	5	3	5,234	530	1,696	35	14	--	--
Iosco	1	--	--	2	448	3,011	401	3	--	3,865	415	134	32	--	--	--
Isabella	--	--	--	--	--	272	2	--	--	275	562	490	3	--	--	--
Kalkaska	1	--	--	1	439	6,167	209	7	1	6,824	523	2,496	54	2	--	--
Lake	--	--	--	--	403	2,670	102	17	1	3,193	791	939	3	--	--	--
Leelanau	--	--	--	--	28	643	14	3	29	715	49	2,367	13	6	--	--
Manistee	--	--	--	--	192	6,434	68	3	2	6,699	804	2,053	18	6	--	--
Mason	--	--	--	--	56	1,213	43	--	--	1,311	884	1,609	--	--	--	--
Mecosta	--	--	--	14	178	1,563	319	--	14	2,087	489	1,130	4	--	1	--
Midland	--	--	--	--	--	11	19	--	--	29	928	215	6	--	--	--
Missaukee	1	--	--	1	238	2,914	219	10	1	3,383	649	873	26	--	--	--
Montmorency	3	--	--	8	726	1,709	236	9	--	2,689	577	912	102	--	--	--
Newaygo	--	--	--	--	306	9,753	216	--	--	10,274	1,771	1,770	--	--	7	--

Northern Lower Peninsula (continued on next page)

Forest Survey Unit and county	Balsam fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	N. white-cedar	Hem-lock	Total soft-woods	Soft maple	Hard maple	White birch	Yellow birch	Hickory	Hack-berry
Northern Lower Peninsula (continued)																
Oceana	--	--	--	--	1	1,144	41	--	8	1,195	719	1,437	--	--	--	--
Ogemaw	1	--	--	1	656	1,438	93	--	--	2,188	1,187	682	196	--	--	--
Osceola	--	--	--	--	159	793	27	6	5	990	853	2,836	22	--	--	--
Oscoda	4	--	--	18	1,914	3,469	706	11	4	6,125	495	887	90	--	--	--
Otsego	1	--	--	5	414	4,766	254	15	1	5,454	571	4,333	98	9	--	--
Presque Isle	49	--	--	26	320	1,544	204	255	--	2,398	450	380	184	--	--	--
Roscommon	1	--	--	3	1,474	2,935	262	239	--	4,912	520	92	42	--	--	--
Wexford	--	--	--	1	590	8,439	91	7	2	9,129	407	3,393	8	--	--	--
Total	155	--	--	201	12,068	85,652	5,156	1,572	97	104,901	21,152	48,552	2,124	161	12	--
Southern Lower Peninsula																
Allegan	--	--	--	--	--	10	3	--	--	13	406	181	--	--	30	4
Barry	--	--	--	--	26	248	42	--	--	316	490	1,700	--	--	124	6
Berrien	--	--	--	--	--	--	--	--	--	--	37	545	--	--	2	5
Branch	--	--	--	--	--	--	--	--	--	--	524	145	--	--	25	--
Calhoun	--	--	--	--	--	22	50	--	--	72	470	204	--	--	208	3
Cass	--	--	--	--	--	--	--	--	--	--	331	326	--	--	72	5
Clinton	--	--	--	--	--	--	--	--	--	--	375	10	--	--	32	--
Eaton	--	--	--	--	--	--	--	--	--	--	172	1,269	--	--	89	--
Genesee	--	18	--	--	--	--	1	--	--	19	96	361	--	--	10	--
Gratiot	--	--	--	--	--	--	7	--	--	7	268	76	1	--	1	--
Hillsdale	--	--	--	--	--	--	--	--	--	--	59	948	--	--	18	--
Huron	--	1	--	--	--	--	--	--	--	1	263	3	--	--	--	--
Ingham	--	--	--	--	--	--	--	--	--	--	283	394	--	--	51	--
Ionia	--	--	--	--	--	214	--	--	--	214	78	531	--	--	45	--
Jackson	--	--	--	--	--	1	--	--	--	1	101	--	--	--	253	4
Kalamazoo	--	--	--	--	--	174	2	--	--	176	448	144	--	--	48	2
Kent	--	--	--	--	--	79	4	--	--	83	772	2,148	--	--	9	2
Lapeer	--	34	--	--	--	46	4	--	--	83	243	195	1	--	12	--
Lenawee	--	--	--	--	--	30	15	--	--	46	60	1,096	--	--	166	--
Livingston	--	--	--	--	--	--	--	--	--	--	203	19	--	--	71	--
Macomb	--	5	--	--	--	--	--	--	--	5	62	102	--	--	13	--
Monroe	--	--	--	--	--	--	--	--	--	--	53	107	--	--	82	--
Montcalm	--	--	--	--	50	307	47	--	--	403	655	314	1	--	2	--
Muskegon	--	4	--	--	6	1,088	136	--	--	1,233	1,004	54	--	--	--	--
Oakland	--	38	--	--	--	3	3	--	--	43	277	701	--	--	103	--
Ottawa	--	--	--	--	1	356	18	--	--	376	442	213	--	--	2	--
Saginaw	--	--	--	--	--	--	3	--	--	3	354	300	1	--	33	--
Sanilac	--	--	--	--	--	--	2	--	--	2	71	--	--	--	--	--
Shiawassee	--	--	--	--	--	--	--	--	--	--	142	364	--	--	9	--
St. Clair	--	53	--	--	--	1	31	--	--	85	315	163	--	--	9	--
St. Joseph	--	--	--	--	--	173	173	--	--	345	218	203	--	--	160	2
Tuscola	--	20	--	--	--	14	6	--	--	39	198	112	1	--	2	--
Van Buren	--	--	--	--	--	--	1	--	--	1	585	1,119	--	--	84	4
Washtenaw	--	--	--	1	--	--	1	--	--	3	98	25	--	--	161	--
Wayne	--	--	--	--	--	--	--	--	--	--	34	14	--	--	10	--
Total	--	172	--	1	82	2,765	546	--	--	3,567	10,186	14,085	7	--	1,935	36
State total	1516	172	8	2,260	15,332	99,415	8,779	7,250	588	135,319	45,062	115,947	9,036	7,358	1,947	36

(Table 12 continued on next page)

(Table 12 continued)

Forest Survey Unit and county	Beech	Ash	Butternut	Black walnut	Yellow-poplar	Syca-more	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Willow	Bass-wood	Elm	Other hard-woods	Total hard-woods	All species
Eastern Upper Peninsula																		
Alger	397	47	--	--	--	--	--	--	640	88	138	10	--	149	1	--	6,845	7,678
Chippewa	56	49	--	--	--	--	--	--	1,615	3	72	--	--	6	--	--	4,543	6,234
Delta	97	142	--	--	--	--	--	500	1,968	152	201	16	--	795	1	--	7,653	10,800
Luce	448	36	--	--	--	--	--	--	311	50	14	--	--	23	--	--	5,938	6,814
Mackinac	203	86	--	--	--	--	--	--	1,314	59	93	--	--	95	--	--	6,619	9,704
Menominee	22	440	--	--	--	--	--	--	2,493	3	436	4	--	399	2	--	6,536	8,293
Schoolcraft	357	22	--	--	--	--	--	--	659	43	9	--	--	100	--	--	6,445	8,482
Total	1,580	823	1	--	--	--	--	500	8,999	398	963	29	--	1,567	4	--	44,578	58,004
Western Upper Peninsula																		
Baraga	6	226	4	--	--	--	--	--	409	139	274	17	--	762	2	--	11,704	12,551
Dickinson	2	47	--	--	--	--	--	12	1,179	6	235	--	--	394	3	--	3,265	3,986
Gogebic	--	526	--	--	--	--	--	--	4,076	95	56	--	--	1,032	4	--	12,583	15,369
Houghton	--	168	--	--	--	--	--	--	1,282	52	408	--	--	774	6	--	12,131	13,747
Iron	6	214	4	--	--	--	--	--	1,966	233	540	17	--	1,735	4	--	13,628	14,843
Keweenaw	--	4	--	--	--	--	--	--	35	--	406	--	--	5	--	--	2,712	3,468
Marquette	1	219	--	--	--	--	--	--	1,638	62	814	15	--	484	2	175	10,156	13,055
Ontonagon	--	354	--	--	--	--	--	--	1,789	25	159	--	--	1,013	6	--	9,365	11,949
Total	15	1,758	9	--	--	--	--	12	12,373	612	2,892	49	--	6,199	27	175	75,543	88,968
Northern Lower Peninsula																		
Alcona	64	281	--	--	--	--	--	--	4,498	22	3,937	152	--	173	1	--	10,283	12,660
Alpena	5	248	--	--	--	--	--	--	3,417	1	920	16	--	230	--	--	6,345	7,744
Antrim	215	303	--	--	--	--	4	--	2,106	29	336	--	--	1,774	12	--	9,152	9,912
Arenac	1	283	--	--	--	--	57	--	1,308	2	445	21	--	11	--	--	2,551	2,839
Bay	--	160	--	--	--	--	23	--	97	16	3	27	--	4	--	--	453	453
Benzie	243	188	--	--	--	--	--	55	462	62	787	7	--	463	--	--	5,313	8,360
Charlevoix	289	503	--	--	--	--	--	--	1,470	7	153	--	--	1,518	1	--	8,252	9,788
Cheboygan	126	155	--	--	--	--	--	--	2,408	3	376	6	--	1,311	1	--	7,252	11,051
Clare	33	218	--	--	--	--	23	--	3,203	108	8,054	504	--	144	2	--	14,832	17,718
Crawford	43	5	--	--	--	--	--	--	811	3	2,067	75	--	67	--	--	3,496	9,947
Emmet	416	283	--	--	--	--	--	--	1,668	75	212	--	--	932	--	--	7,651	10,325
Gladwin	--	313	--	--	--	--	62	11	3,421	13	1,245	141	--	35	1	--	6,527	7,242
Grand Traverse	79	136	--	--	--	--	--	--	806	49	947	88	--	291	--	--	4,670	9,905
Iosco	--	340	--	--	--	--	7	--	2,015	10	840	93	--	19	2	--	3,906	7,771
Isabella	4	155	--	4	--	--	39	--	918	18	1,331	126	3	40	--	--	3,692	3,966
Kalkaska	145	77	--	--	--	--	--	--	1,050	70	689	9	--	779	--	--	5,894	12,718
Lake	174	248	--	--	--	--	--	62	771	96	8,346	599	--	241	4	--	12,273	15,465
Leelanau	197	427	--	--	--	--	--	28	215	32	802	7	--	431	1	--	4,572	5,287
Manistee	181	163	--	--	--	--	2	--	589	226	1,969	253	--	188	--	--	6,453	13,152
Mason	32	170	--	--	--	--	--	14	520	97	3,534	353	--	124	--	--	7,337	8,647
Mecosta	38	301	--	1	--	--	--	--	1,368	115	756	85	6	107	1	--	4,404	6,491
Midland	20	273	--	--	--	--	175	40	1,084	9	1,000	497	--	160	15	--	4,422	4,451
Missaukee	43	195	--	--	--	--	2	--	1,214	39	1,087	54	--	98	1	--	4,282	7,664
Montmorency	50	138	--	--	--	--	--	--	3,149	8	2,486	28	--	911	--	--	8,361	11,050
Newaygo	79	271	--	4	--	--	--	--	538	261	6,596	822	26	239	1	1	12,389	22,663

Northern Lower Peninsula (continued on next page)

Forest Survey Unit and county	Beech	Ash	Butternut	Black walnut	Yellow-poplar	Syca-more	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Willow	Bass-wood	Elm	Other hard-woods	Total hard-woods	All species
Northern Lower Peninsula (continued)																		
Oceana	257	293	--	--	--	--	8	69	573	239	3,046	153	--	218	--	1	7,013	8,208
Ogemaw	18	174	--	--	--	--	--	1,000	2,790	3	2,181	106	--	96	--	--	8,434	10,622
Osceola	126	440	--	--	--	--	6	--	1,308	211	2,664	27	--	191	5	15	8,704	9,694
Oscoda	51	143	--	--	--	--	--	15	3,609	53	3,354	59	--	305	--	--	9,062	15,187
Otsego	403	141	--	--	--	--	--	--	2,373	11	766	8	--	2,705	3	--	11,423	16,877
Presque Isle	15	148	--	--	--	--	--	--	2,244	--	848	3	--	336	--	--	4,609	7,007
Roscommon	2	99	--	--	--	--	--	3	1,661	8	3,406	326	--	32	--	--	6,191	11,104
Wexford	267	281	--	--	--	--	--	69	820	141	1,636	10	--	439	6	1	7,476	16,605
Total	3,618	7,553	--	10	--	--	409	1,366	54,483	2,039	66,818	4,653	35	14,614	56	18	227,673	332,574
Southern Lower Peninsula																		
Allegan	96	596	--	40	766	--	--	--	118	421	2,066	745	--	44	3	6	5,521	5,534
Barry	166	218	--	57	1	--	--	--	116	723	2,759	509	--	287	3	8	7,166	7,482
Berrien	29	22	--	1	251	240	12	--	64	224	111	30	--	25	38	6	1,644	1,644
Branch	--	202	--	16	49	--	1	--	54	63	96	167	--	36	6	--	1,384	1,384
Calhoun	32	422	--	--	42	--	--	--	53	589	716	336	--	352	16	5	3,447	3,519
Cass	22	145	--	75	6	--	--	--	31	438	823	206	--	48	124	7	2,659	2,659
Clinton	--	32	--	22	--	--	--	--	10	156	161	68	1	44	1	--	913	913
Eaton	96	345	--	90	--	--	4	--	75	144	262	184	--	357	19	--	3,106	3,106
Genesee	14	109	--	19	--	--	26	--	46	15	349	99	--	67	6	--	1,216	1,235
Gratiot	--	101	--	--	--	--	35	--	55	4	503	135	1	88	3	--	1,273	1,279
Hillsdale	--	89	--	38	--	--	--	--	55	100	155	45	--	59	--	--	1,564	1,564
Huron	--	96	--	--	--	--	359	--	190	4	37	--	--	18	--	--	970	971
Ingham	27	169	--	1	--	--	11	--	44	72	153	60	--	89	8	--	1,363	1,363
Ionia	287	69	--	15	--	--	7	--	148	210	717	56	4	245	1	--	2,413	2,627
Jackson	--	156	--	100	--	--	--	--	35	439	1,428	657	--	97	1	5	3,276	3,278
Kalamazoo	5	141	--	22	17	--	1	--	83	268	647	223	--	1	77	2	2,131	2,307
Kent	61	210	--	36	1	--	--	--	226	236	2,988	740	11	170	1	2	7,614	7,697
Lapeer	--	85	--	3	--	--	99	--	95	11	302	217	--	9	3	--	1,277	1,360
Lenawee	61	54	--	41	10	--	--	--	57	81	172	94	--	266	--	--	2,158	2,203
Livingston	--	102	--	--	--	--	1	--	38	303	1,230	689	--	9	1	--	2,668	2,668
Macomb	19	33	--	--	1	--	23	--	10	15	30	29	--	19	--	--	356	361
Monroe	--	67	--	44	4	--	12	--	22	38	193	204	--	48	--	--	873	873
Montcalm	49	389	--	6	--	--	--	--	419	57	2,708	1,000	21	70	29	--	5,721	6,124
Muskegon	304	119	--	1	--	--	--	--	157	86	4,175	668	--	40	--	--	6,609	7,842
Oakland	32	217	--	10	--	--	26	1	64	202	1,035	403	--	65	10	--	3,144	3,187
Ottawa	254	162	--	--	3	--	4	--	48	47	1,321	300	--	26	1	--	2,823	3,199
Saginaw	--	399	--	--	1	--	75	--	136	4	569	519	--	5	3	--	2,400	2,403
Sanilac	--	103	--	--	--	--	19	--	137	8	25	1	--	14	--	--	378	380
Shiawassee	13	233	--	19	--	--	6	--	45	49	246	78	--	62	1	--	1,267	1,267
St Clair	27	189	--	--	--	--	193	--	37	20	778	315	--	26	--	--	2,071	2,155
St Joseph	--	259	--	223	5	--	21	--	94	311	1,149	126	--	34	42	2	2,849	3,194
Tuscola	1	143	--	--	--	--	168	--	337	17	157	66	--	46	3	--	1,250	1,289
Van Buren	79	229	--	6	2	--	--	--	69	481	1,244	385	--	41	111	6	4,443	4,444
Washtenaw	--	70	--	220	--	--	1	--	50	153	735	868	--	18	1	--	2,400	2,403
Wayne	4	21	--	--	7	--	--	--	1	3	207	151	--	66	8	--	525	525
Total	1,678	5,996	1	1,105	1,168	240	1,106	1	3,219	5,990	30,247	10,370	39	2,893	522	47	90,870	94,436
State total	6,891	16,130	10	1,115	1,168	240	1,515	1,879	79,074	9,039	100,921	15,101	73	25,274	609	240	438,664	573,983

[1] *International 1/4-inch rule.*

Table 13.--Saw log receipts by Forest Survey Unit, species group, and State of origin, Michigan, 1996

(In thousand board feet) [1]

Species group	All Units						
		Area of origin					
	Total	Illinois	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Balsam fir	1,510	--	1,306	15	189	--	--
Redcedar	172	--	172	--	--	--	--
Tamarack	4	--	4	--	--	--	--
Spruce	1,710	--	1,488	20	202	--	--
Jack pine	9,853	--	9,853	--	--	--	--
Red pine	93,923	--	93,804	--	118	--	--
White pine	7,998	--	7,975	--	24	--	--
N. white-cedar	7,387	--	6,922	--	465	--	--
Hemlock	332	--	326	--	4	--	2
Total	122,890	--	121,851	35	1,002	--	2
Hardwoods							
Soft maple	42,279	17	41,300	--	787	17	159
Hard maple	112,798	61	107,808	--	2,686	61	2,182
White birch	5,300	--	4,180	--	1,111	--	10
Yellow birch	4,578	--	4,242	--	260	--	76
Hickory	1,506	6	1,495	--	--	6	--
Beech	6,417	--	6,417	--	--	--	--
Ash	14,554	19	14,281	--	216	19	18
Black walnut	575	3	569	--	--	3	--
Yellow-poplar	168	3	163	--	--	3	--
Cottonwood	1,201	--	1,201	--	--	--	--
Balsam poplar	1,867	--	1,867	--	--	--	--
Aspen	73,344	--	72,211	--	1,103	--	29
Black cherry	8,348	17	8,246	--	61	17	9
Red oak group	97,833	105	94,497	--	3,066	105	60
White oak group	13,290	28	13,235	--	--	28	--
Willow	73	--	73	--	--	--	--
Basswood	21,846	8	21,637	--	187	8	5
Elm	419	--	419	--	--	--	--
Other hardwoods	190	--	190	--	--	--	--
Total	406,584	265	394,031	--	9,476	265	2,548
All species	529,474	265	515,881	35	10,478	265	2,550

Eastern Upper Peninsula

Species group	Total	Area of origin					
		Illinois	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Balsam fir	1,350	--	1,146	15	189	--	--
Spruce	1,368	--	1,146	20	202	--	--
Jack pine	1,180	--	1,180	--	--	--	--
Red pine	2,270	--	2,152	--	118	--	--
White pine	1,533	--	1,509	--	24	--	--
N. white-cedar	3,634	--	3,169	--	465	--	--
Hemlock	17	--	15	--	2	--	--
Total	11,351	--	10,316	35	1,000	--	--
Hardwoods							
Soft maple	4,916	--	4,772	--	144	--	--
Hard maple	24,374	--	21,573	--	1,207	--	1,594
White birch	1,298	--	1,218	--	80	--	--
Yellow birch	834	--	832	--	2	--	--
Beech	1,389	--	1,389	--	--	--	--
Ash	1,150	--	965	--	186	--	--
Balsam poplar	500	--	500	--	--	--	--
Aspen	8,110	--	7,658	--	452	--	--
Black cherry	427	--	427	--	--	--	--
Red oak group	578	--	578	--	--	--	--
Basswood	1,585	--	1,499	--	86	--	--
Elm	22	--	22	--	--	--	--
Other hardwoods	175	--	175	--	--	--	--
Total	45,358	--	41,606	--	2,158	--	1,594
All species	56,709	--	51,922	35	3,158	--	1,594

(Table 13 continued on next page)

(Table 13 continued)

Western Upper Peninsula

Species group	Total	Area of origin					
		Illinois	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Balsam fir	5	--	5	--	--	--	--
Tamarack	4	--	4	--	--	--	--
Spruce	139	--	139	--	--	--	--
Jack pine	44	--	44	--	--	--	--
Red pine	372	--	372	--	--	--	--
White pine	780	--	780	--	--	--	--
N. white-cedar	664	--	664	--	--	--	--
Hemlock	216	--	212	--	2	--	2
Total	2,224	--	2,220	--	2	--	2
Hardwoods							
Soft maple	6,656	--	5,855	--	643	--	159
Hard maple	26,164	--	24,097	--	1,479	--	588
White birch	1,921	--	880	--	1,031	--	10
Yellow birch	3,578	--	3,244	--	258	--	76
Ash	912	--	864	--	30	--	18
Aspen	5,692	--	5,012	--	651	--	29
Black cherry	432	--	363	--	61	--	9
Red oak group	4,618	--	1,492	--	3,066	--	60
White oak group	10	--	10	--	--	--	--
Basswood	3,118	--	3,012	--	100	--	5
Elm	4	--	4	--	--	--	--
Total	53,105	--	44,833	--	7,318	--	954
All species	55,330	--	47,053	--	7,320	--	956

Northern Lower Peninsula

Species group	Total	Area of origin					
		Illinois	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Balsam fir	155	--	155	--	--	--	--
Spruce	202	--	202	--	--	--	--
Jack pine	8,604	--	8,604	--	--	--	--
Red pine	90,910	--	90,910	--	--	--	--
White pine	5,335	--	5,335	--	--	--	--
N. white-cedar	3,090	--	3,090	--	--	--	--
Hemlock	99	--	99	--	--	--	--
Total	108,394	--	108,394	--	--	--	--
Hardwoods							
Soft maple	18,244	--	18,244	--	--	--	--
Hard maple	45,719	--	45,719	--	--	--	--
White birch	2,050	--	2,050	--	--	--	--
Yellow birch	166	--	166	--	--	--	--
Hickory	106	--	106	--	--	--	--
Beech	3,748	--	3,748	--	--	--	--
Ash	6,719	--	6,719	--	--	--	--
Cottonwood	509	--	509	--	--	--	--
Balsam poplar	1,366	--	1,366	--	--	--	--
Aspen	53,367	--	53,367	--	--	--	--
Black cherry	1,630	--	1,630	--	--	--	--
Red oak group	62,123	--	62,123	--	--	--	--
White oak group	2,909	--	2,909	--	--	--	--
Basswood	14,375	--	14,375	--	--	--	--
Elm	49	--	49	--	--	--	--
Total	213,080	--	213,080	--	--	--	--
All species	321,474	--	321,474	--	--	--	--

(Table 13 continued on next page)

(Table 13 continued)

Southern Lower Peninsula

Species group	Total	Area of origin					
		Illinois	Michigan	Minnesota	Wisconsin	Ohio	Canada
Softwoods							
Redcedar	172	--	172	--	--	--	--
Spruce	1	--	1	--	--	--	--
Jack pine	26	--	26	--	--	--	--
Red pine	371	--	371	--	--	--	--
White pine	351	--	351	--	--	--	--
Total	921	--	921	--	--	--	--
Hardwoods							
Soft maple	12,463	17	12,429	--	--	17	--
Hard maple	16,540	61	16,419	--	--	61	--
White birch	32	--	32	--	--	--	--
Hickory	1,401	6	1,390	--	--	6	--
Beech	1,280	--	1,280	--	--	--	--
Ash	5,772	19	5,734	--	--	19	--
Black walnut	575	3	569	--	--	3	--
Yellow-poplar	168	3	163	--	--	3	--
Cottonwood	692	--	692	--	--	--	--
Balsam poplar	1	--	1	--	--	--	--
Aspen	6,175	--	6,175	--	--	--	--
Black cherry	5,859	17	5,826	--	--	17	--
Red oak group	30,514	105	30,304	--	--	105	--
White oak group	10,370	28	10,315	--	--	28	--
Willow	73	--	73	--	--	--	--
Basswood	2,768	8	2,751	--	--	8	--
Elm	344	--	344	--	--	--	--
Other hardwoods	15	--	15	--		--	
Total	95,042	265	94,512	--	--	265	--
All species	95,962	265	95,432	--	--	265	--

[1] *International 1/4-inch rule.*

Rows and columns may not sum due to rounding.

Table 14.--Veneer log and bolt production and receipts in Michigan for selected years, 1946-1996

(In thousand board feet) [1]

Year	Production	Receipts
1946	78,858	46,055
1948	77,684	53,899
1950	53,568	37,404
1952	40,219	28,547
1954	34,499	21,872
1956	39,655	23,564
1958	19,958	12,597
1960	18,487	12,075
1963	15,300	7,598
1965	20,392	12,428
1966	21,942	12,782
1968	19,333	9,573
1969	19,194	14,970
1970	15,039	6,729
1972	18,479	5,324
1974 [2]	25,949	25,322
1975	26,079	26,851
1976	33,373	28,764
1977	42,738	30,838
1978	35,030	39,179
1980	36,761	27,287
1984	31,753	13,737
1988	36,201	39,220
1990	37,836	41,736
1992	38,195	40,251
1994	49,096	44,485
1996	60,550	54,673

[1] *International 1/4-inch rule.*

[2] *Includes veneer logs received at Iron Wood Products Co.; such receipts are not shown before 1974.*

Table 15.--Veneer log and bolt production and receipts by species group, Michigan, 1994 and 1996

(In thousand board feet) [1]

Species	Production			Receipts		
	1994	1996	Change	1994	1996	Change
Softwoods						
Jack pine	--	260	260	--	260	260
Red pine	168	1,042	874	421	1,042	621
White pine	486	741	255	628	520	-108
Hemlock	--	--	--	--	--	--
Spruce	492	1,042	550	1,229	1,042	-187
Tamarack	89	--	-89	222	--	-222
Total	1,235	3,084	1,849	2,500	2,864	364
Hardwoods						
Ash	1,118	948	-170	825	570	-255
Aspen	9,185	23,293	14,108	22,501	23,177	676
Basswood	572	696	124	41	--	-41
Beech	851	551	-300	913	466	-447
White birch	3,548	2,611	-937	1,504	842	-662
Yellow birch	1,944	949	-995	1,154	197	-957
Cottonwood	--	821	821	171	8,208	8,037
Elm	26	17	-9	63	--	-63
Hickory	62	68	6	90	62	-28
Hard maple	21,002	20,280	-722	9,177	13,779	4,602
Soft maple	924	1,107	183	6	1,323	1,317
Red oak group	6,607	3,835	-2,772	2,687	2,036	-651
White oak group	1,075	853	-222	2,285	522	-1,763
Black walnut	324	371	47	228	39	-189
Yellow-poplar	26	7	-19	--	--	--
Sycamore	--	--	--	86	--	-86
Balsam poplar	--	--	--	--	--	--
Black cherry	587	991	404	255	591	336
Other hardwoods	13	67	54	--	--	--
Total	47,864	57,465	9,601	41,986	51,810	9,824
All species	49,909	60,550	10,641	44,486	54,673	10,187

[1] *International 1/4-inch rule.*

Table 16.--Veneer log and bolt production by Forest Survey Unit, species group, and destination, Michigan, 1996

(In thousand board feet) [1]

All Units

Species group	Total	Destination							
		Illinois	Indiana	Michigan	Wisconsin	Kentucky	Ohio	Other U.S.	Canada
Softwoods									
Spruce	1,042	--	--	1,042	--	--	--	--	--
Jack pine	260	--	--	260	--	--	--	--	--
Red pine	1,042	--	--	1,042	--	--	--	--	--
White pine	741	--	--	520	47	--	--	--	174
Total	3,084	--	--	2,864	47	--	--	--	174
Hardwoods									
Soft maple	1,107	--	--	502	605	--	--	--	--
Hard maple	20,280	57	2,261	9,408	6,275	--	1,509	88	682
White birch	2,611	--	--	534	2,078	--	--	--	--
River birch	67	--	67	--	--	--	--	--	--
Yellow birch	949	--	--	197	752	--	--	--	--
Hickory	68	--	3	62	--	--	--	--	3
Beech	551	--	--	466	12	--	--	--	73
Ash	948	--	24	570	121	--	53	87	93
Black walnut	371	--	169	7	--	46	42	88	19
Yellow-poplar	7	--	3	--	--	4	--	--	--
Cottonwood	821	--	--	821	--	--	--	--	--
Aspen	23,293	--	--	23,177	116	--	--	--	--
Black cherry	991	219	426	299	25	--	11	--	11
Red oak group	3,835	--	498	834	1,747	116	581	1	57
White oak group	853	57	236	93	12	27	102	1	325
Basswood	696	--	--	--	684	--	--	--	12
Elm	17	--	--	--	--	--	--	--	17
Total	57,465	333	3,687	36,969	12,429	193	2,298	264	1,293
All species	60,550	333	3,687	39,832	12,475	193	2,298	264	1,467

(Table 16 continued on next page)

(Table 16 continued)

Eastern Upper Peninsula

Species group	Total	Destination							
		Illinois	Indiana	Michigan	Wisconsin	Kentucky	Ohio	Other U.S.	Canada
Softwoods									
Spruce	436	--	--	436	--	--	--	--	--
Jack pine	168	--	--	168	--	--	--	--	--
Red pine	670	--	--	670	--	--	--	--	--
White pine	373	--	--	269	--	--	--	--	103
Total	1,647	--	--	1,544	--	--	--	--	103
Hardwoods									
Soft maple	435	--	--	374	60	--	--	--	--
Hard maple	6,370	--	--	5,112	696	--	--	20	542
White birch	362	--	--	259	103	--	--	--	--
Yellow birch	125	--	--	93	32	--	--	--	--
Beech	392	--	--	380	12	--	--	--	--
Ash	29	--	--	10	19	--	--	--	--
Aspen	8,537	--	--	8,537	--	--	--	--	--
Black cherry	16	--	--	16	--	--	--	--	--
Red oak group	103	--	--	13	91	--	--	--	--
White oak group	2	--	--	2	--	--	--	--	--
Basswood	43	--	--	--	43	--	--	--	--
Total	16,415	--	--	14,797	1,057	--	--	20	542
All species	18,062	--	--	16,341	1,057	--	--	20	645

Western Upper Peninsula

Species group	Total	Destination							
		Illinois	Indiana	Michigan	Wisconsin	Kentucky	Ohio	Other U.S.	Canada
Softwoods									
Spruce	606	--	--	606	--	--	--	--	--
Jack pine	92	--	--	92	--	--	--	--	--
Red pine	371	--	--	371	--	--	--	--	--
White pine	297	--	--	251	47	--	--	--	--
Total	1,367	--	--	1,320	47	--	--	--	--
Hardwoods									
Soft maple	582	--	--	37	545	--	--	--	--
Hard maple	7,784	--	--	2,136	5,579	--	--	68	--
White birch	2,233	--	--	259	1,974	--	--	--	--
Yellow birch	793	--	--	73	720	--	--	--	--
Beech	*	--	--	--	*	--	--	--	--
Ash	122	--	--	15	102	--	--	5	--
Aspen	14,756	--	--	14,640	116	--	--	--	--
Black cherry	48	--	--	23	25	--	--	--	--
Red oak group	1,700	--	--	43	1,656	--	--	--	--
White oak group	14	--	--	1	12	--	--	--	--
Basswood	641	--	--	--	641	--	--	--	--
Total	28,672	--	--	17,227	11,372	--	--	73	--
All species	30,039	--	--	18,547	11,419	--	--	73	--

(Table 16 continued on next page)

(Table 16 continued)

Northern Lower Peninsula

Species group	Total	Destination							
		Illinois	Indiana	Michigan	Wisconsin	Kentucky	Ohio	Other U.S.	Canada
Softwoods									
White pine	71	--	--	--	--	--	--	--	71
Total	71	--	--	--	--	--	--	--	71
Hardwoods									
Hard maple	2,055	--	--	1,958	--	--	--	--	97
White birch	16	--	--	16	--	--	--	--	--
Yellow birch	31	--	--	31	--	--	--	--	--
Hickory	13	--	--	13	--	--	--	--	--
Beech	71	--	--	71	--	--	--	--	--
Ash	485	--	--	375	--	--	--	53	57
Black walnut	1	--	--	1	--	--	--	--	--
Black cherry	137	--	--	130	--	--	--	--	7
Red oak group	686	--	--	579	--	71	--	*	35
White oak group	97	--	--	41	--	4	--	*	51
Basswood	9	--	--	--	--	--	--	--	9
Elm	2	--	--	--	--	--	--	--	2
Total	3,601	--	--	3,215	--	76	--	53	258
All species	3,672	--	--	3,215	--	76	--	53	329

Southern Lower Peninsula

Species group	Total	Destination							
		Illinois	Indiana	Michigan	Wisconsin	Kentucky	Ohio	Other U.S.	Canada
Hardwoods									
Soft maple	90	--	--	90	--	--	--	--	--
Hard maple	4,071	57	2,261	202	--	--	1,509	--	43
River birch	67	--	67	--	--	--	--	--	--
Hickory	55	--	3	49	--	--	--	--	3
Beech	88	--	--	15	--	--	--	--	73
Ash	313	--	24	170	--	--	53	29	36
Black walnut	370	--	169	6	--	46	42	88	19
Yellow-poplar	7	--	3	--	--	4	--	--	--
Cottonwood	821	--	--	821	--	--	--	--	--
Black cherry	791	219	426	130	--	--	11	--	5
Red oak group	1,345	--	498	200	--	45	581	*	22
White oak group	740	57	236	49	--	23	102	1	274
Basswood	3	--	--	--	--	--	--	--	3
Elm	15	--	--	--	--	--	--	--	15
Total	8,777	333	3,687	1,731	--	117	2,298	118	494
All species	8,777	333	3,687	1,731	--	117	2,298	118	494

[1] *International 1/4-inch rule.*

** = Less than 500 board feet.*

Table 17.--Veneer log and bolt receipts by area of origin, for selected years, Michigan, 1946-1996

(In thousand board feet) [1]

Year	All areas	Area of origin				
		Michigan	Wisconsin	Minnesota	Other U.S.	Canada[2]
1946	46,055	44,534	--	--	956	565
1948	53,899	50,151	127	--	699	2,922
1950	37,404	33,125	454	73	477	3,275
1952	28,547	24,077	1,046	341	650	2,433
1954	21,872	18,596	582	183	137	2,374
1956	23,564	20,341	105	177	80	2,861
1958	12,597	10,785	80	166	40	1,526
1960	12,075	8,628	450	500	245	2,252
1963	7,598	5,315	495	235	165	1,388
1965	12,428	10,344	805	102	180	997
1966	12,782	10,654	585	138	206	1,199
1968	9,573	8,375	332	173	283	410
1969	14,970	12,663	1,498	300	59	450
1970	6,729	5,399	79	77	246	928
1972	5,324	4,565	66	33	--	660
1974 [3]	25,322	12,724	11,136	1,092	--	370
1975	26,851	15,609	10,885	357	--	--
1976	28,764	18,516	9,830	418	--	--
1977	30,838	30,378	--	--	460	--
1978	39,179	22,597	15,000	1,000	525	57
1980	27,287	22,087	5,200	--	--	--
1984	13,737	11,052	146	520	2,019	--
1988	39,220	18,623	16,502	--	4,095	--
1990	41,736	21,724	17,110	--	2,902	--
1992	40,251	19,167	16,870	177	3,153	884
1994	44,485	25,927	15,062	--	3,444	52
1996	54,673	39,832	2,312	--	11,628	901

[1] *International 1/4-inch rule.*

[2] *Includes only logs and bolts shipped to Canadian mills for processing.*

[3] *Includes all veneer logs received at Iron Wood Products Co.; such receipts are not shown before 1974.*

Table 18.--Veneer log and bolt receipts by species group and area of origin, Michigan, 1996

(In thousand board feet) [1]

Species group	Total	Area of origin									
		Illinois	Indiana	Iowa	Michigan	Minnesota	Wisconsin	Kentucky	Ohio	Other U.S.	Canada
Softwoods											
Spruce	1,042	--	--	--	1,042	--	--	--	--	--	--
Jack pine	260	--	--	--	260	--	--	--	--	--	--
Red pine	1,042	--	--	--	1,042	--	--	--	--	--	--
White pine	520	--	--	--	520	--	--	--	--	--	--
Total	2,864	--	--	--	2,864	--	--	--	--	--	--
Hardwoods											
Soft maple	1,323	--	821	--	502	--	--	--	--	--	--
Hard maple	13,779	251	500	125	9,408	--	1,632	500	500	--	861
White birch	842	--	--	--	534	--	269	--	--	--	40
Yellow birch	197	--	--	--	197	--	--	--	--	--	--
Hickory	62	--	--	--	62	--	--	--	--	--	--
Beech	466	--	--	--	466	--	--	--	--	--	--
Ash	570	--	--	--	570	--	--	--	--	--	--
Black walnut	39	3	7	1	7	--	7	7	7	--	--
Cottonwood	8,208	--	7,387	--	821	--	--	--	--	--	--
Aspen	23,177	--	--	--	23,177	--	62	--	--	--	--
Black cherry	591	31	62	15	299	--	253	62	62	--	--
Red oak group	2,036	127	253	63	834	--	--	253	253	--	--
White oak group	522	46	90	23	93	--	90	90	90	--	--
Total	51,810	457	9,120	227	36,969	--	2,313	912	912	--	901
All species	54,673	457	9,120	227	39,832	--	2,313	912	912	--	901

[1] *International 1/4-inch rule.*

Rows and columns may not sum due to rounding.

Table 19.--Wood material harvested for industrial roundwood by Forest Survey Unit, species group, and source of material, Michigan, 1996 [1]

(In thousand cubic feet)

All Units

Species group	Growing stock				Non-growing stock						Total material used for products	Total material not used	Total material harvested
	Used for products		Logging residue (not used)	Total	Used for products				Logging slash (not used)	Total			
	Sawtimber	Pole-timber			Limb-wood	Sapling	Cull trees	Dead trees					
Softwoods													
Balsam fir	4,051.6	1,534.3	244.0	5,829.8	469.7	60.7	52.0	32.0	1,675.5	2,289.9	6,200.3	1,919.5	8,119.8
Redcedar	30.2	0.5	3.5	34.2	0.9	--	0.1	0.7	12.5	14.2	32.4	16.0	48.4
Tamarack	340.2	125.5	20.5	486.1	13.0	5.5	1.2	1.9	151.2	172.8	487.2	171.7	658.9
Spruce	5,005.4	1,768.9	333.9	7,108.2	430.1	71.6	66.8	34.9	2,124.8	2,728.1	7,377.5	2,458.7	9,836.3
Jack pine	15,040.2	6,669.0	681.5	22,390.7	4,043.3	250.5	375.0	813.6	4,978.9	10,461.4	27,191.7	5,660.4	32,852.1
Red pine	22,870.1	4,933.4	1,057.6	28,861.2	2,992.6	236.8	793.7	407.7	8,099.7	12,530.4	32,234.3	9,157.3	41,391.6
White pine	2,318.4	518.5	106.9	2,943.7	496.4	15.5	96.7	31.9	729.8	1,370.3	3,477.3	836.7	4,314.0
N. white-cedar	2,560.6	1,366.2	440.3	4,367.1	121.7	96.3	28.3	42.4	974.2	1,262.8	4,215.4	1,414.5	5,629.9
Hemlock	2,995.7	1,824.9	182.0	5,002.6	314.0	134.8	290.8	157.1	1,771.5	2,668.2	5,717.3	1,953.5	7,670.9
Other softwoods	59.8	72.3	--	132.1	95.8	0.7	13.1	--	6.2	115.9	241.8	6.2	248.0
Total	55,272.2	18,813.4	3,070.2	77,155.8	8,977.4	872.4	1,717.7	1,522.1	20,524.3	33,613.9	87,175.2	23,594.5	110,769.8
Hardwoods													
Soft maple	16,647.5	15,104.6	2,681.6	34,433.7	2,967.9	255.7	1,940.2	418.0	6,360.1	11,941.8	37,333.8	9,041.7	46,375.5
Hard maple	33,959.4	8,748.6	4,801.3	47,509.3	4,210.9	180.1	9,145.6	57.6	15,849.7	29,443.9	56,302.2	20,650.9	76,953.2
White birch	6,603.6	7,417.0	1,116.8	15,137.4	1,301.7	92.7	1,048.1	216.2	3,024.4	5,683.0	16,679.2	4,141.2	20,820.5
River birch	9.8	--	1.8	11.6	*	--	1.1	--	3.1	4.1	10.9	4.9	15.8
Yellow birch	3,699.9	1,282.5	488.4	5,470.8	623.2	14.3	1,660.6	4.6	2,335.9	4,638.6	7,285.1	2,824.3	10,109.4
Hickory	320.5	5.1	40.4	365.9	6.8	--	6.5	--	67.1	80.5	338.9	107.6	446.4
Hackberry	6.0	0.2	1.0	7.2	0.1	--	*	--	1.3	1.4	6.4	2.2	8.6
Beech	1,605.4	330.6	199.7	2,135.6	203.8	6.9	287.3	2.1	571.3	1,071.3	2,436.0	770.9	3,207.0
Ash	3,827.0	1,145.2	470.2	5,442.3	467.9	42.9	726.4	13.7	1,411.5	2,662.4	6,223.1	1,881.7	8,104.7
Butternut	1.7	0.1	0.3	2.0	*	--	*	--	0.3	0.4	1.8	0.6	2.4
Black walnut	232.2	2.9	32.2	267.3	4.0	--	9.0	--	53.6	66.7	248.1	85.9	334.0
Yellow-poplar	194.4	7.9	31.2	233.6	2.6	--	1.3	--	40.5	44.3	206.2	71.7	277.9
Sycamore	39.7	1.6	6.4	47.7	0.5	--	0.2	--	8.2	9.0	42.1	14.6	56.7
Cottonwood	377.1	20.0	63.8	460.8	5.2	0.2	15.8	0.3	92.8	114.1	418.4	156.5	575.0
Balsam poplar	1,857.7	2,296.3	326.7	4,480.6	360.7	17.4	332.1	69.8	944.1	1,724.0	4,933.9	1,270.7	6,204.7
Aspen	44,053.2	41,438.6	4,338.9	89,830.7	3,738.3	152.4	2,974.9	603.7	15,343.1	22,812.3	92,961.0	19,682.0	112,643.1
Black cherry	1,722.6	177.1	282.2	2,181.9	38.1	0.6	42.1	3.6	402.4	486.7	1,984.0	684.6	2,668.7
Red oak group	17,674.2	4,275.3	1,858.1	23,807.5	1,740.8	127.3	670.4	400.9	2,948.9	5,888.3	24,888.9	4,806.9	29,695.9
White oak group	2,884.3	1,474.6	298.3	4,657.1	409.5	62.0	139.4	86.7	538.2	1,235.8	5,056.5	836.5	5,893.0
Black locust	1.0	*	0.1	1.1	*	--	*	--	0.2	0.2	1.0	0.3	1.3
Willow	12.1	0.5	1.9	14.6	0.2	--	0.1	--	2.5	2.8	12.8	4.5	17.3
Sassafras	5.2	0.2	0.8	6.3	0.1	--	*	--	1.1	1.2	5.5	1.9	7.5
Basswood	5,865.9	3,179.6	930.8	9,976.3	563.9	85.4	349.8	82.1	1,696.5	2,777.7	10,126.7	2,627.3	12,754.0
Elm	117.8	30.9	18.9	167.6	5.8	0.7	3.8	0.7	29.2	40.2	159.8	48.1	207.8
Other hardwoods	348.7	495.6	59.9	904.2	102.5	6.4	276.4	14.7	333.9	733.9	1,244.3	393.8	1,638.0
Total	142,066.8	87,435.0	18,051.5	247,553.4	16,754.3	1,045.0	19,631.1	1,974.6	52,059.8	91,464.9	268,906.9	70,111.4	339,018.3
All species	197,339.1	106,248.4	21,121.8	324,709.2	25,731.7	1,917.4	21,348.9	3,496.7	72,584.2	125,078.8	356,082.1	93,705.9	449,788.1

Eastern Upper Peninsula

Species group	Growing stock				Non-growing stock						Total material used for products	Total material not used	Total material harvested
	Used for products		Logging residue (not used)	Total	Used for products				Logging slash (not used)	Total			
	Sawtimber	Pole-timber			Limb-wood	Sapling	Cull trees	Dead trees					
Softwoods													
Balsam fir	1,490.6	530.6	97.6	2,118.8	68.9	24.2	5.7	11.5	642.4	752.6	2,131.5	740.0	2,871.4
Tamarack	159.5	59.0	9.6	228.1	6.1	2.6	0.6	0.9	70.9	81.0	228.7	80.5	309.1
Spruce	1,669.8	549.7	117.1	2,336.6	63.2	24.4	12.8	11.6	725.2	837.3	2,331.6	842.4	3,173.9
Jack pine	3,318.4	1,967.8	171.9	5,458.1	392.3	93.1	49.4	233.4	1,485.3	2,253.6	6,054.5	1,657.3	7,711.8
Red pine	3,514.1	1,339.8	224.0	5,077.9	242.4	96.7	218.3	121.0	1,633.8	2,312.1	5,532.2	1,857.7	7,390.0
White pine	463.0	78.1	29.7	570.7	19.2	5.4	17.6	9.1	176.0	227.3	592.3	205.7	798.0
N. white-cedar	1,485.5	759.2	255.2	2,499.9	67.7	53.6	16.0	25.2	566.8	729.3	2,407.1	822.1	3,229.2
Hemlock	1,027.6	647.2	63.1	1,737.9	110.9	47.8	103.3	55.4	617.8	935.2	1,992.2	680.9	2,673.0
Total	13,128.3	5,931.5	968.2	20,028.0	970.6	347.9	423.7	468.1	5,918.2	8,128.5	21,270.0	6,886.5	28,156.5
Hardwoods													
Soft maple	3,175.2	3,408.8	545.0	7,129.0	544.6	35.8	480.2	101.4	1,447.7	2,609.9	7,746.2	1,992.7	9,738.9
Hard maple	7,714.8	1,864.9	1,116.4	10,696.2	1,014.8	4.9	2,813.2	1.6	4,327.6	8,162.1	13,414.2	5,444.0	18,858.3
White birch	2,305.6	2,375.4	398.2	5,079.2	378.6	20.5	345.7	71.2	1,046.3	1,862.3	5,497.0	1,444.5	6,941.5
Yellow birch	821.1	266.0	109.7	1,196.8	144.0	--	410.9	--	561.4	1,116.3	1,641.9	671.2	2,313.1
Beech	419.5	63.1	56.6	539.2	33.3	0.7	85.4	0.2	164.3	283.9	602.3	220.8	823.1
Ash	409.4	130.4	54.0	593.8	68.9	0.4	191.8	0.1	266.7	527.9	800.9	320.7	1,121.6
Butternut	0.1	*	*	0.1	*	--	*	--	*	*	0.1	*	0.1
Cottonwood	*	*	*	0.1	*	*	*	*	*	*	0.1	*	0.1
Balsam poplar	638.5	802.0	114.2	1,554.7	124.6	4.1	119.9	24.7	336.2	609.5	1,713.8	450.4	2,164.2
Aspen	7,848.1	7,089.5	963.9	15,901.4	415.3	5.7	661.9	94.6	2,879.6	4,057.1	16,115.0	3,843.5	19,958.5
Black cherry	104.7	55.0	17.6	177.3	9.0	0.3	8.5	1.6	35.3	54.6	179.0	52.9	231.9
Red oak group	192.3	104.3	23.4	319.9	22.5	1.8	12.0	7.9	48.1	92.2	340.7	71.4	412.2
White oak group	5.1	0.5	0.6	6.1	0.2	*	0.2	0.1	0.9	1.3	6.0	1.4	7.5
Basswood	435.7	256.4	74.7	766.7	42.9	2.5	37.2	7.2	144.1	233.9	781.8	218.8	1,000.7
Elm	1.4	1.0	0.2	2.6	0.2	*	0.1	*	0.5	0.8	2.6	0.8	3.4
Other hardwoods	129.3	185.7	23.5	338.5	39.3	1.0	123.2	5.7	143.2	312.5	484.3	166.7	651.0
Total	24,200.6	16,603.0	3,498.0	44,301.5	2,838.1	77.7	5,290.2	316.4	11,402.1	19,924.5	49,326.0	14,900.0	64,226.0
All species	37,328.9	22,534.5	4,466.2	64,329.5	3,808.7	425.6	5,713.8	784.6	17,320.3	28,052.9	70,596.0	21,786.5	92,382.5

(Table 19 continued on next page)

(Table 19 continued)

Western Upper Peninsula

Species group	Growing stock				Non-growing stock						Total material used for products	Total material not used	Total material harvested
	Used for products		Logging residue (not used)	Total	Used for products				Logging slash (not used)	Total			
	Sawtimber	Pole-timber			Limb-wood	Sapling	Cull trees	Dead trees					
Softwoods													
Balsam fir	2,206.1	768.1	140.1	3,114.2	82.8	33.8	8.0	14.5	976.6	1,115.7	3,113.2	1,116.6	4,229.9
Tamarack	179.9	66.1	10.9	256.9	6.8	2.9	0.7	1.0	80.0	91.4	257.5	90.8	348.3
Spruce	3,092.5	1,023.3	210.9	4,326.7	112.4	45.0	20.5	20.9	1,355.3	1,554.0	4,314.5	1,566.3	5,880.7
Jack pine	3,312.4	2,131.2	194.7	5,638.3	271.0	101.6	53.4	240.1	1,667.7	2,333.7	6,109.6	1,862.4	7,972.0
Red pine	2,239.2	792.5	126.7	3,158.5	149.7	57.4	129.8	75.4	1,052.6	1,464.9	3,444.0	1,179.3	4,623.3
White pine	514.5	89.8	30.8	635.1	20.4	6.2	18.1	10.3	198.2	253.3	659.3	229.0	888.4
N. white-cedar	616.2	248.3	83.0	947.5	25.1	15.9	4.8	9.1	248.8	303.7	919.5	331.8	1,251.3
Hemlock	1,932.3	1,173.3	117.3	3,222.9	202.0	86.6	187.0	101.0	1,140.9	1,717.5	3,682.3	1,258.2	4,940.4
Total	14,093.2	6,292.6	914.4	21,300.1	870.2	349.4	422.2	472.3	6,720.1	8,834.2	22,499.9	7,634.5	30,134.3
Hardwoods													
Soft maple	4,440.2	4,812.1	747.3	9,999.7	780.1	67.9	643.6	140.4	1,960.6	3,592.5	10,884.3	2,707.9	13,592.2
Hard maple	13,972.3	5,328.2	1,932.0	21,232.5	2,214.1	138.3	5,099.5	44.8	7,780.0	15,276.7	26,797.3	9,712.0	36,509.2
White birch	3,119.8	3,446.2	553.2	7,119.2	541.2	24.9	536.4	104.9	1,525.1	2,732.5	7,773.3	2,078.4	9,851.7
Yellow birch	2,839.4	1,009.1	373.4	4,222.0	476.0	14.1	1,242.7	4.6	1,760.2	3,497.6	5,585.9	2,133.6	7,719.5
Beech	118.7	52.2	16.1	186.9	27.7	--	80.5	--	102.0	210.2	279.1	118.1	397.2
Ash	748.4	657.7	83.0	1,489.0	181.7	33.6	250.7	10.9	374.9	851.7	1,882.9	457.8	2,340.7
Butternut	1.4	0.1	0.2	1.7	*	--	*	--	0.3	0.3	1.5	0.5	2.0
Cottonwood	1.1	3.0	0.1	4.2	0.5	0.1	0.2	0.1	0.5	1.4	5.1	0.6	5.6
Balsam poplar	702.8	1,043.9	125.1	1,871.8	163.5	8.8	149.4	31.8	397.7	751.1	2,100.1	522.8	2,622.9
Aspen	14,230.1	14,383.2	1,460.5	30,073.8	958.7	49.1	1,096.1	216.0	5,353.9	7,673.9	30,933.3	6,814.3	37,747.7
Black cherry	152.4	67.4	25.6	245.4	11.1	0.3	10.8	2.0	48.5	72.8	244.1	74.1	318.2
Red oak group	921.5	853.8	134.9	1,910.2	167.6	13.7	98.1	53.4	331.3	664.1	2,108.1	466.2	2,574.3
White oak group	18.3	33.2	3.0	54.5	6.3	0.3	3.0	2.1	9.9	21.5	63.2	12.9	76.0
Basswood	2,105.1	2,099.9	319.3	4,524.3	368.2	70.4	206.9	54.5	719.2	1,419.2	4,905.1	1,038.4	5,943.5
Elm	8.9	6.7	1.5	17.1	1.1	*	1.0	0.2	3.5	5.8	17.9	5.0	22.9
Other hardwoods	151.2	178.0	26.8	356.0	40.5	1.0	140.7	5.5	158.7	346.3	516.9	185.4	702.3
Total	43,531.7	33,974.7	5,801.9	83,308.3	5,938.3	422.7	9,559.6	670.9	20,526.1	37,117.7	94,097.9	26,328.0	120,425.9
All species	57,624.9	40,267.3	6,716.3	104,608.4	6,808.5	772.1	9,981.9	1,143.2	27,246.2	45,951.8	116,597.8	33,962.5	150,560.3

Northern Lower Peninsula

Species group	Growing stock				Non-growing stock						Total material used for products	Total material not used	Total material harvested
	Used for products		Logging residue (not used)	Total	Used for products				Logging slash (not used)	Total			
	Sawtimber	Pole-timber			Limb-wood	Sapling	Cull trees	Dead trees					
Softwoods													
Balsam fir	335.5	234.1	6.3	575.9	310.9	2.8	38.3	5.1	55.6	412.7	926.7	61.9	988.6
Tamarack	0.8	0.3	*	1.1	*	*	*	*	0.3	0.4	1.1	0.4	1.5
Spruce	238.3	195.5	5.8	439.6	252.8	2.2	33.4	2.1	43.9	334.5	724.3	49.8	774.1
Jack pine	8,384.3	2,562.7	312.6	11,259.6	3,378.7	55.4	272.0	339.0	1,814.5	5,859.6	14,992.2	2,127.0	17,119.2
Red pine	16,663.2	2,789.5	687.3	20,140.1	2,592.0	82.4	444.9	206.8	5,271.1	8,597.3	22,778.9	5,958.5	28,737.4
White pine	1,250.4	349.1	42.5	1,642.0	455.3	3.9	61.0	11.6	327.6	859.3	2,131.3	370.0	2,501.3
N. white-cedar	456.9	358.6	102.1	917.5	28.1	26.8	7.5	7.9	158.4	228.8	885.8	260.5	248.0
Hemlock	35.8	4.3	1.7	41.8	1.2	0.3	0.6	0.6	12.9	15.5	42.8	14.5	1,146.3
Other softwood	59.8	72.3	--	132.1	95.8	0.7	13.1	--	6.2	115.9	241.8	6.2	57.4
Total	27,425.0	6,566.4	1,158.3	35,149.7	7,114.8	174.5	870.8	573.2	7,690.6	16,424.0	42,724.8	8,848.9	51,573.7
Hardwoods													
Soft maple	7,122.5	6,176.0	1,099.8	14,398.3	1,503.0	117.3	770.8	161.2	2,523.5	5,075.7	15,850.7	3,623.4	19,474.0
Hard maple	9,429.3	1,480.5	1,318.0	12,227.8	904.3	36.9	1,094.1	11.3	3,000.3	5,046.8	12,956.4	4,318.2	17,274.7
White birch	1,174.1	1,590.5	164.7	2,929.3	381.2	47.2	165.4	39.9	451.0	1,084.7	3,398.3	615.7	4,014.0
Yellow birch	39.4	7.4	5.2	52.1	3.2	0.2	6.9	0.1	14.3	24.7	57.3	19.5	76.8
Hickory	3.8	*	0.6	4.4	*	--	0.2	--	1.0	1.3	4.1	1.6	5.6
Beech	780.9	208.3	90.6	1,079.8	135.5	6.2	111.3	1.8	240.7	495.5	1,244.0	331.3	1,575.3
Ash	1,658.3	337.6	204.7	2,200.7	194.2	8.9	256.2	2.7	550.8	1,012.9	2,458.0	755.5	3,213.5
Black walnut	1.7	*	0.2	2.0	*	--	*	--	0.4	0.4	1.8	0.6	2.4
Cottonwood	67.8	2.8	10.9	81.4	0.9	--	0.4	--	14.1	15.4	71.8	25.0	96.8
Balsam poplar	505.1	434.5	85.4	1,024.9	70.1	4.5	60.5	12.8	203.8	351.6	1,087.4	289.1	1,376.5
Aspen	20,865.7	19,006.4	1,832.7	41,704.9	2,219.5	85.5	1,167.4	276.0	6,831.5	10,579.9	43,620.6	8,664.2	52,284.8
Black cherry	357.7	13.9	58.0	429.6	4.5	*	4.2	*	76.4	85.2	380.4	134.4	514.8
Red oak group	11,433.9	2,438.3	1,159.5	15,031.7	1,282.8	68.7	412.2	239.6	1,783.2	3,786.5	15,875.5	2,942.7	18,818.2
White oak group	949.5	662.5	101.8	1,713.8	219.6	15.2	67.0	39.9	223.6	565.3	1,953.8	325.4	2,279.1
Willow	5.7	0.2	0.9	6.9	0.1	--	*	--	1.2	1.3	6.1	2.1	8.2
Basswood	2,842.0	798.5	459.1	4,099.7	145.6	12.4	102.0	20.3	731.5	1,011.8	3,920.9	1,190.7	5,111.5
Elm	18.9	19.8	2.9	41.5	3.5	0.7	1.9	0.5	6.5	13.1	45.2	9.4	54.6
Other hardwoods	65.0	129.4	9.1	203.5	22.3	4.4	12.1	3.4	30.7	73.0	236.6	39.8	276.4
Total	57,321.5	33,306.7	6,604.1	97,232.2	7,090.4	407.9	4,232.8	809.6	16,684.4	29,225.1	103,168.8	23,288.5	126,457.3
All species	84,746.5	39,873.1	7,762.3	132,381.9	14,205.2	582.4	5,103.6	1,382.8	24,375.0	45,649.1	145,893.6	32,137.4	178,031.0

(Table 19 continued on next page)

(Table 19 continued)

Southern Lower Peninsula

Species group	Growing stock				Non-growing stock						Total material used for products	Total material not used	Total material harvested
	Used for products		Logging residue (not used)	Total	Used for products				Logging slash (not used)	Total			
	Sawtimber	Pole-timber			Limb-wood	Sapling	Cull trees	Dead trees					
Softwoods													
Balsam fir	19.4	1.5	--	20.8	7.1	--	--	1.0	0.9	9.0	28.9	0.9	29.8
Redcedar	30.2	0.5	3.5	34.2	0.9	--	0.1	0.7	12.5	14.2	32.4	16.0	48.4
Spruce	4.9	0.4	*	5.2	1.7	--	*	0.2	0.3	2.3	7.2	0.3	7.5
Jack pine	25.1	7.3	2.3	34.7	1.3	0.3	0.2	1.1	11.4	14.4	35.4	13.6	49.1
Red pine	453.6	11.6	19.6	484.8	8.5	0.3	0.7	4.5	142.2	156.2	479.2	161.8	641.0
White pine	90.5	1.5	3.9	95.9	1.6	--	--	0.8	28.0	30.4	94.5	31.9	126.4
N. white-cedar	2.0	0.2	--	2.2	0.7	--	--	0.1	0.1	0.9	3.0	0.1	3.1
Total	625.7	22.9	29.3	678.0	21.8	0.6	1.0	8.5	195.3	227.2	680.5	224.7	905.2
Hardwoods													
Soft maple	1,909.5	707.7	289.5	2,906.7	140.2	34.7	45.6	14.9	428.3	663.7	2,852.7	717.7	3,570.4
Hard maple	2,843.0	74.9	434.9	3,352.8	77.7	*	138.7	*	741.8	958.2	3,134.3	1,176.7	4,311.0
White birch	4.2	4.8	0.7	9.7	0.8	0.1	0.6	0.1	1.9	3.6	10.6	2.6	13.3
River birch	9.8	--	1.8	11.6	*	--	1.1	--	3.1	4.1	10.9	4.9	15.8
Hickory	316.7	5.0	39.8	361.5	6.8	--	6.3	--	66.2	79.3	334.8	106.0	440.8
Hackberry	6.0	0.2	1.0	7.2	0.1	--	*	--	1.3	1.4	6.4	2.2	8.6
Beech	286.3	7.0	36.4	329.7	7.3	*	10.1	*	64.3	81.7	310.7	100.7	411.3
Ash	1,010.9	19.5	128.5	1,158.9	23.1	*	27.7	*	219.1	270.0	1,081.3	347.6	1,428.8
Butternut	0.2	*	*	0.2	*	--	*	--	*	*	0.2	0.1	0.2
Black walnut	230.5	2.9	32.0	265.4	4.0	--	9.0	--	53.3	66.2	246.3	85.3	331.6
Yellow-poplar	194.4	7.9	31.2	233.6	2.6	--	1.3	--	40.5	44.3	206.2	71.7	277.9
Sycamore	39.7	1.6	6.4	47.7	0.5	--	0.2	--	8.2	9.0	42.1	14.6	56.7
Cottonwood	308.2	14.2	52.8	375.1	3.7	*	15.2	0.2	78.2	97.3	341.4	131.0	472.4
Balsam poplar	11.3	15.9	2.0	29.2	2.5	0.1	2.4	0.5	6.4	11.8	32.6	8.4	41.1
Aspen	1,109.3	959.5	81.9	2,150.7	144.7	12.1	49.5	17.0	278.1	501.4	2,292.1	360.0	2,652.1
Black cherry	1,107.9	40.7	181.0	1,329.6	13.4	--	18.6	--	242.2	274.2	1,180.6	423.2	1,603.8
Red oak group	5,126.5	878.9	540.3	6,545.7	267.9	43.2	148.2	100.0	786.3	1,345.6	6,564.7	1,326.6	7,891.3
White oak group	1,911.4	778.3	192.9	2,882.7	183.4	46.5	69.3	44.6	303.9	647.7	3,033.5	496.8	3,530.4
Black locust	1.0	*	0.1	1.1	*	--	*	--	0.2	0.2	1.0	0.3	1.3
Willow	6.4	0.3	1.0	7.7	0.1	--	*	--	1.3	1.5	6.8	2.4	9.1
Sassafras	5.2	0.2	0.8	6.3	0.1	--	*	--	1.1	1.2	5.5	1.9	7.5
Basswood	483.1	24.8	77.7	585.6	7.2	*	3.7	0.2	101.7	112.7	519.0	179.4	698.3
Elm	88.6	3.5	14.3	106.4	1.2	--	0.8	--	18.6	20.5	94.0	32.9	127.0
Other hardwoods	3.2	2.4	0.6	6.2	0.4	*	0.4	0.1	1.3	2.1	6.5	1.8	8.4
Total	17,013.1	3,550.6	2,147.6	22,711.4	887.4	136.7	548.6	177.7	3,447.3	5,197.7	22,314.2	5,594.9	27,909.1
All species	17,638.8	3,573.6	2,177.0	23,389.3	909.2	137.4	549.6	186.2	3,642.6	5,425.0	22,994.7	5,819.6	28,814.3

[1] *Based on factors obtained from the Michigan Utilization Study of 1980 and other regional utilization studies.*

** = Less than 50 cubic feet.*

Rows and columns may not sum due to rounding.

Table 20.--Growing-stock removals from timberland for industrial roundwood by Forest Survey Unit, county, and species group, Michigan, 1996

(In thousand cubic feet)

Forest Survey Unit and county	Balsam fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	Other pine	N. white-cedar	Hemlock	Total soft-woods	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry
Eastern Upper Peninsula																		
Alger	335	--	42	655	459	670	82	--	120	320	2,683	1,331	2,300	841	--	252	--	--
Chippewa	404	--	38	367	1,244	966	59	--	178	197	3,453	933	967	563	--	80	--	--
Delta	417	--	47	352	971	707	86	--	734	301	3,613	1,211	1,725	1,062	--	260	--	--
Luce	92	--	8	213	688	621	64	--	49	443	2,178	882	1,463	441	--	127	--	--
Mackinac	209	--	14	197	588	714	33	--	220	76	2,051	1,022	1,317	792	--	140	--	--
Menominee	333	--	32	178	211	151	131	--	615	186	1,837	690	968	738	--	153	--	--
Schoolcraft	329	--	46	375	1,298	1,249	116	--	584	215	4,213	1,061	1,956	642	--	185	--	--
Total	2,119	--	228	2,337	5,458	5,078	571	--	2,500	1,738	20,028	7,129	10,696	5,079	--	1,197	--	--
Western Upper Peninsula																		
Baraga	137	--	10	286	204	104	46	--	92	966	1,845	1,092	2,664	710	--	591	--	--
Dickinson	437	--	40	673	604	267	67	--	153	200	2,441	425	760	606	--	253	--	--
Gogebic	186	--	5	245	69	300	45	--	53	118	1,019	917	2,435	790	--	432	--	--
Houghton	250	--	25	351	426	382	37	--	63	262	1,796	1,882	4,232	1,222	--	786	--	--
Iron	847	--	64	1,023	752	547	86	--	100	307	3,726	1,431	2,857	1,356	--	847	--	--
Keweenaw	50	--	4	154	20	13	35	--	128	81	486	354	745	374	--	186	--	--
Marquette	973	--	105	992	2,945	1,054	293	--	324	1,185	7,872	2,377	3,565	1,515	--	627	--	--
Ontonagon	234	--	4	602	618	492	26	--	34	104	2,114	1,520	3,975	546	--	500	--	--
Total	3,114	--	257	4,327	5,638	3,158	635	--	948	3,223	21,300	10,000	21,233	7,119	--	4,222	--	--
Northern Lower Peninsula																		
Alcona	21	--	--	31	443	424	86	8	2	--	1,015	477	105	189	--	1	--	--
Alpena	87	--	--	77	284	188	114	26	536	--	1,312	626	102	184	--	*	--	--
Antrim	5	--	--	*	13	157	13	--	1	--	190	287	843	76	--	1	--	--
Arenac	--	--	--	5	19	47	19	--	--	--	89	140	27	41	--	--	--	--
Bay	--	--	--	--	2	5	--	--	--	--	7	25	5	6	--	--	--	--
Benzie	4	--	--	18	43	757	6	--	--	11	839	172	596	46	--	2	--	--
Charlevoix	8	--	--	8	7	182	16	--	60	--	281	86	715	96	--	21	--	--
Cheboygan	39	--	--	14	641	542	71	7	88	--	1,402	738	534	161	--	1	--	--
Clare	--	--	--	--	353	479	16	--	1	--	849	788	215	68	--	2	1	--
Crawford	2	--	*	8	1,672	2,038	131	--	1	2	3,853	481	210	139	--	2	--	--
Emmet	8	--	--	5	199	446	8	--	20	--	687	719	798	153	--	1	--	--
Gladwin	--	--	--	--	22	113	9	--	--	--	144	443	100	78	--	2	*	--
Grand Traverse	--	--	--	--	317	1,303	55	--	1	*	1,676	229	359	51	--	3	*	--
Iosco	*	--	--	21	197	743	113	--	1	--	1,075	212	36	89	--	*	--	--
Isabella	--	--	--	--	14	58	*	--	--	--	73	423	271	18	--	--	--	--
Kalkaska	23	--	--	24	639	1,536	72	--	1	8	2,303	380	585	51	--	2	--	--
Lake	--	--	--	--	449	563	17	--	3	*	1,033	369	278	95	--	1	--	--
Leelanau	2	--	--	6	5	181	32	--	*	5	232	29	476	6	--	1	--	--
Manistee	--	--	--	--	153	1,283	78	--	1	*	1,514	528	620	120	--	3	--	--
Mason	--	--	--	--	99	262	7	--	--	--	369	340	378	78	--	1	--	--
Mecosta	--	--	--	3	74	317	54	--	--	2	451	441	399	18	--	*	*	--
Midland	--	--	--	--	2	4	3	--	--	--	9	391	95	46	--	*	*	--
Missaukee	18	--	*	63	248	753	88	--	2	5	1,176	528	251	89	--	*	--	--
Montmorency	80	--	--	22	671	443	72	33	4	--	1,325	632	238	163	--	--	--	--
Newaygo	--	--	--	--	61	1,670	37	--	--	--	1,768	764	550	31	--	1	2	--
Oceana	--	--	--	--	*	195	7	--	--	1	204	258	311	26	--	1	--	--
Ogemaw	1	--	--	11	758	379	32	--	--	--	1,182	433	161	110	--	*	--	--
Osceola	4	--	--	7	50	209	20	--	1	1	292	714	800	63	--	2	--	--
Oscoda	34	--	--	19	1,010	803	192	13	2	1	2,073	331	197	124	--	*	--	--
Otsego	49	--	--	3	313	865	48	11	3	*	1,291	550	1,043	156	--	2	--	--
Presque Isle	166	--	1	44	600	376	38	34	74	5	1,338	1,001	124	202	--	*	--	--
Roscommon	23	--	--	24	1,417	721	148	--	114	--	2,446	559	70	103	--	*	--	--
Wexford	3	--	--	27	485	2,097	39	--	1	*	2,653	302	736	54	--	1	--	--
Total	576	--	1	440	11,260	20,140	1,642	132	918	42	35,150	14,398	12,228	2,929	--	52	4	--

Forest Survey Unit and county	Balsam fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	Other pine	N. white-cedar	Hemlock	Total soft-woods	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry
Southern Lower Peninsula																		
Allegan	--	--	--	--	--	2	1	--	--	--	3	275	33	--	--	--	6	1
Barry	--	--	--	--	6	44	8	--	--	--	58	114	427	--	1	--	23	1
Berrien	--	--	--	--	--	--	--	--	--	--	--	15	186	--	3	--	1	1
Branch	--	--	--	--	--	--	--	--	--	--	--	134	26	--	--	--	5	--
Calhoun	--	--	--	--	--	4	9	--	--	--	13	109	37	--	1	--	39	1
Cass	--	--	--	--	--	--	--	--	--	--	--	84	59	--	1	--	13	1
Clinton	--	--	--	--	--	--	--	--	--	--	--	75	2	--	--	--	6	--
Eaton	--	--	--	--	--	--	--	--	--	--	--	35	229	--	--	--	17	--
Genesee	--	4	--	--	--	--	*	--	--	--	4	19	97	--	--	--	2	--
Gratiot	--	--	--	--	--	--	1	--	--	--	1	153	71	*	--	--	*	--
Hillsdale	--	--	--	--	--	--	--	--	--	--	--	12	206	--	--	--	3	--
Huron	--	*	--	--	--	--	--	--	--	--	*	52	1	--	--	--	--	--
Ingham	--	--	--	--	--	--	--	--	--	--	--	56	71	--	--	--	9	--
Ionia	--	--	--	--	--	36	--	--	--	--	36	16	96	--	--	--	8	--
Jackson	--	--	--	--	--	*	--	--	--	--	*	20	--	--	1	--	47	1
Kalamazoo	--	--	--	--	--	30	*	--	--	--	30	105	26	--	--	--	9	*
Kent	21	--	--	5	--	14	1	--	2	--	43	240	576	1	2	--	2	*
Lapeer	--	7	--	--	--	8	1	--	--	--	15	48	82	*	--	--	2	--
Lenawee	--	--	--	--	--	5	3	--	--	--	8	12	241	--	--	--	31	--
Livingston	--	--	--	--	--	--	--	--	--	--	--	40	3	--	--	--	13	--
Macomb	--	1	--	--	--	--	--	--	--	--	1	12	19	--	--	--	2	--
Monroe	--	--	--	--	--	--	--	--	--	--	--	11	19	--	--	--	15	--
Montcalm	--	--	--	--	27	52	8	--	--	--	87	233	105	1	1	--	1	--
Muskegon	--	1	--	--	1	186	23	--	--	--	211	296	12	--	--	--	*	--
Oakland	--	8	--	--	--	*	*	--	--	--	8	55	127	--	--	--	19	--
Ottawa	--	--	--	--	*	61	3	--	--	--	64	131	106	--	--	--	*	--
Saginaw	--	--	--	--	--	--	1	--	--	--	1	70	54	*	--	--	6	--
Sanilac	--	--	--	--	1	9	*	--	--	--	10	36	--	7	--	--	--	--
Shiawassee	--	--	--	--	--	--	--	--	--	--	--	28	66	--	--	--	2	--
St. Clair	--	11	--	--	--	*	5	--	--	--	16	63	31	--	--	--	2	--
St. Joseph	--	--	--	--	--	29	29	--	--	--	59	72	37	--	1	--	30	*
Tuscola	--	4	--	--	--	4	1	--	--	--	9	41	57	*	--	--	*	--
Van Buren	--	--	--	--	--	--	*	--	--	--	*	218	246	--	2	--	16	1
Washtenaw	--	--	--	*	--	--	*	--	--	--	1	20	4	--	1	--	30	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	7	2	--	--	--	2	--
Total	21	34	--	5	35	485	96	--	2	--	678	2,907	3,353	10	12	--	362	7
State total	5,830	34	486	7,108	22,391	28,861	2,944	132	4,367	5,003	77,156	34,434	47,509	15,137	12	5,471	366	7

(Table 20 continued on next page)

(Table 20 continued)

Forest Survey Unit and county	Beech	Ash	Butternut	Black walnut	Yellow-poplar	Syca-more	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Willow	Sassa-fras	Bass-wood	Elm	Other hard-woods	Total hard-woods	All species
Eastern Upper Peninsula																				
Alger	120	113	*	--	--	--	--	95	1,180	36	50	2	--	--	--	110	*	79	6,508	9,191
Chippewa	45	41	--	--	--	--	--	444	3,064	9	41	*	--	--	--	38	*	21	6,245	9,697
Delta	50	112	*	--	--	--	--	279	2,800	51	62	3	--	--	--	245	1	68	7,929	11,542
Luce	115	59	*	--	--	--	--	35	1,185	18	15	*	--	--	--	49	*	39	4,429	6,607
Mackinac	63	73	*	--	--	--	--	436	2,768	22	33	--	--	--	--	76	1	42	6,786	8,836
Menominee	17	136	--	--	--	--	*	144	3,043	9	101	1	--	--	--	170	1	39	6,211	8,048
Schoolcraft	129	59	*	--	--	--	--	122	1,861	32	19	--	--	--	--	78	*	51	6,195	10,408
Total	539	594	*	--	--	--	*	1,555	15,901	177	320	6	--	--	--	767	3	338	44,302	64,330
Western Upper Peninsula																				
Baraga	25	105	1	--	--	--	--	175	1,960	44	152	7	--	--	--	358	1	33	7,919	9,764
Dickinson	9	30	--	--	--	--	*	209	3,906	7	113	2	--	--	--	216	2	18	6,556	8,997
Gogebic	*	204	*	--	--	--	1	82	2,556	21	250	18	--	--	--	476	4	45	8,232	9,251
Houghton	23	307	*	--	--	--	*	263	3,134	25	322	5	--	--	--	854	3	53	13,112	14,907
Iron	30	99	1	--	--	--	*	388	5,253	66	284	9	--	--	--	664	3	52	13,339	17,065
Keweenaw	--	18	--	--	--	--	--	1	274	--	185	*	--	--	--	77	*	11	2,225	2,710
Marquette	99	103	*	--	--	--	*	489	6,632	76	394	7	--	--	--	380	2	121	16,387	24,259
Ontonagon	1	622	--	--	--	--	2	266	6,358	6	211	5	--	--	--	1,500	2	24	15,539	17,654
Total	187	1,489	2	--	--	--	4	1,872	30,074	245	1,910	54	--	--	--	4,524	17	356	83,308	104,608
Northern Lower Peninsula																				
Alcona	24	100	--	--	--	--	--	122	2,962	5	811	39	--	--	--	48	*	--	4,885	5,900
Alpena	21	84	--	--	--	--	--	37	2,323	*	316	21	--	--	--	55	*	1	3,772	5,085
Antrim	54	76	--	--	--	--	1	5	647	6	108	11	--	--	--	373	4	9	2,500	2,690
Arenac	2	69	--	--	--	--	11	8	570	*	91	5	--	--	--	3	*	1	968	1,057
Bay	--	31	--	--	--	--	5	--	108	3	1	5	--	--	--	1	--	--	190	197
Benzie	56	58	--	--	--	--	--	19	374	13	218	19	--	--	--	111	2	14	1,698	2,537
Charlevoix	55	96	--	--	--	--	--	*	351	2	31	1	--	--	--	394	*	1	1,851	2,132
Cheboygan	35	46	--	--	--	--	--	21	2,437	1	131	6	--	--	--	315	*	1	4,428	5,830
Clare	9	47	--	--	--	--	5	3	2,127	23	1,502	107	--	--	--	34	1	5	4,935	5,784
Crawford	24	10	--	--	--	--	--	16	1,657	1	570	20	--	--	--	48	--	--	3,178	7,031
Emmet	89	61	--	--	--	--	--	1	1,071	16	47	2	--	--	--	347	*	1	3,304	3,991
Gladwin	1	64	--	--	--	--	12	18	1,859	3	229	28	--	--	--	13	1	*	2,851	2,995
Grand Traverse	18	34	--	--	--	--	--	6	577	10	211	31	--	--	--	88	1	6	1,625	3,300
Iosco	1	79	--	--	--	--	1	18	1,037	2	174	22	--	--	--	9	1	2	1,683	2,758
Isabella	3	39	--	1	--	--	8	12	1,224	4	243	24	--	1	--	12	--	--	2,281	2,354
Kalkaska	37	25	--	--	--	--	--	9	755	15	183	10	--	--	--	206	1	6	2,265	4,567
Lake	52	107	--	--	--	--	--	35	594	20	1,743	166	--	--	--	89	6	37	3,591	4,624
Leelanau	42	102	--	--	--	--	--	6	103	6	147	1	--	--	--	88	*	--	1,007	1,239
Manistee	61	87	--	--	--	--	*	34	882	48	579	169	--	--	--	95	5	32	3,262	4,777
Mason	24	57	--	--	--	--	--	20	744	20	740	130	--	--	--	55	2	15	2,603	2,972
Mecosta	20	91	--	*	--	--	--	60	1,326	24	178	81	--	1	--	45	1	4	2,692	3,143
Midland	15	65	--	--	--	--	35	20	780	2	225	106	--	--	--	44	4	7	1,835	1,844
Missaukee	18	59	--	--	--	--	*	18	1,572	8	260	34	--	--	--	36	1	8	2,885	4,061
Montmorency	35	102	--	--	--	--	--	65	2,872	2	651	26	--	--	--	293	--	--	5,078	6,403
Newaygo	32	82	--	1	--	--	--	36	833	55	1,338	250	--	5	--	69	2	12	4,063	5,831
Oceana	71	71	--	--	--	--	2	31	462	49	624	88	--	--	--	53	1	5	2,052	2,256
Ogemaw	8	51	--	*	--	--	--	215	1,456	1	541	31	--	--	--	24	*	3	3,034	4,216
Osceola	52	126	--	--	--	--	1	64	1,651	43	577	125	--	--	--	68	2	13	4,303	4,595
Oscoda	20	46	--	--	--	--	--	26	1,730	11	759	23	--	--	--	85	*	1	3,353	5,426
Otsego	105	49	--	--	--	--	--	5	1,739	2	204	12	--	--	--	784	1	1	4,654	5,945
Presque Isle	25	69	--	--	--	--	--	48	2,275	--	387	21	--	--	--	74	--	--	4,226	5,564
Roscommon	9	39	--	--	--	--	--	13	1,792	2	849	80	--	--	--	27	1	10	3,553	6,000
Wexford	63	76	--	--	--	--	--	34	814	31	366	19	--	--	--	117	3	10	2,625	5,278
Total	1,080	2,201	--	2	--	--	81	1,025	41,705	430	15,032	1,714	--	7	--	4,100	42	203	97,232	132,382

Forest Survey Unit and county	Beech	Ash	Butternut	Black walnut	Yellow-poplar	Syca-more	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Willow	Sassa-fras	Bass-wood	Elm	Other hard-woods	Total hard-woods	All species
Southern Lower Peninsula																				
Allegan	18	110	*	7	153	--	13	1	232	85	633	417	*	--	1	9	1	*	1,993	1,996
Barry	30	40	*	10	*	--	5	--	40	152	541	123	*	--	1	57	1	*	1,567	1,625
Berrien	5	4	*	*	50	48	2	--	21	66	31	17	*	--	1	5	8	*	464	464
Branch	--	38	--	3	10	--	22	--	41	13	53	69	--	--	--	7	1	--	421	421
Calhoun	6	78	*	--	8	--	6	2	25	125	148	81	*	--	1	70	3	*	739	753
Cass	4	27	*	20	1	--	13	--	24	94	171	61	*	--	1	10	25	*	610	610
Clinton	--	6	--	7	--	--	--	--	2	32	30	12	--	*	--	9	*	--	181	181
Eaton	18	64	--	19	--	--	30	--	14	29	48	33	--	--	--	71	4	--	611	611
Genesee	3	21	--	7	--	--	5	--	9	3	64	18	--	--	--	13	1	--	260	264
Gratiot	--	27	--	--	--	--	12	14	232	1	93	25	--	*	--	27	1	--	654	656
Hillsdale	--	17	--	10	--	--	--	--	10	20	28	8	--	--	--	12	--	--	327	327
Huron	--	18	--	--	--	--	72	--	37	1	7	--	--	--	--	4	--	--	191	191
Ingham	5	32	--	*	--	--	2	--	8	14	28	11	--	--	--	18	2	--	257	257
Ionia	53	14	--	3	--	--	13	--	28	43	131	10	--	1	--	49	*	--	463	500
Jackson	--	29	*	21	--	--	--	--	7	96	271	130	*	--	1	19	*	*	643	643
Kalamazoo	3	26	*	4	3	--	9	1	46	54	141	66	*	--	*	*	15	*	510	540
Kent	14	48	*	7	*	--	--	5	203	58	667	227	*	2	*	34	1	*	2,087	2,129
Lapeer	--	16	--	1	--	--	20	--	18	2	55	44	--	--	--	2	1	--	291	306
Lenawee	11	10	--	11	2	--	--	--	11	17	32	17	--	--	--	53	--	--	447	454
Livingston	--	19	--	--	--	--	*	--	7	62	233	137	--	--	--	2	*	--	518	518
Macomb	3	6	--	--	*	--	5	--	2	3	5	5	--	--	--	4	--	--	68	69
Monroe	--	13	--	14	1	--	2	--	4	8	35	37	--	--	--	9	--	--	169	169
Montcalm	13	87	--	1	--	--	5	6	414	15	560	224	--	4	--	14	6	--	1,689	1,776
Muskegon	56	25	--	*	--	--	--	--	164	18	933	250	--	--	--	8	--	--	1,762	1,972
Oakland	6	41	--	2	--	--	5	*	12	41	196	82	--	--	--	13	2	--	600	608
Ottawa	47	34	--	--	1	--	27	--	81	10	310	112	--	--	--	5	1	--	864	928
Saginaw	--	73	--	--	*	--	15	--	27	1	104	99	--	--	--	1	1	--	452	452
Sanilac	--	20	--	--	--	--	4	--	87	2	5	*	--	--	--	3	--	--	163	173
Shiawassee	2	44	--	4	--	--	1	--	8	10	45	14	--	--	--	12	*	--	238	238
St. Clair	5	36	--	--	--	--	38	--	7	5	142	57	--	--	--	5	--	--	391	407
St. Joseph	--	47	*	62	1	--	4	--	48	66	245	62	*	--	*	7	8	4	694	753
Tuscola	*	27	--	--	--	--	33	--	156	4	29	12	--	--	--	9	1	--	369	378
Van Buren	27	43	*	1	*	--	12	--	121	146	360	217	*	--	1	8	22	*	1,440	1,440
Washtenaw	--	13	--	52	--	--	*	--	9	35	134	178	--	--	--	4	*	--	481	481
Wayne	1	4	--	--	1	--	--	--	*	1	38	27	--	--	--	13	2	--	98	98
Total	330	1,159	*	265	234	48	375	29	2,151	1,330	6,546	2,883	1	8	6	586	106	6	22,711	23,389
State total	2,136	5,442	2	267	234	48	461	4,481	89,831	2,182	23,808	4,657	1	15	6	9,976	168	904	247,553	324,709

** = Less than 500 cubic feet.*

Table 21.--Sawtimber removals from timberland for industrial roundwood by Forest Survey Unit, county, and species group, Michigan, 1996

(In thousand board feet) [1]

Forest Survey Unit and county	Balsam fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	Other pine	N. white-cedar	Hemlock	Total soft-woods	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry
Eastern Upper Peninsula																		
Alger	923	--	114	1,811	1,016	2,436	358	--	350	801	7,808	2,645	8,892	1,675	--	894	--	--
Chippewa	1,116	--	104	1,133	2,969	3,049	234	--	532	492	9,627	1,644	3,911	1,010	--	252	--	--
Delta	1,157	--	126	1,022	2,665	2,410	366	--	2,321	757	10,824	2,299	6,038	2,170	--	819	--	--
Luce	249	--	21	615	1,547	1,762	347	--	145	1,107	5,792	2,241	6,213	875	--	449	--	--
Mackinac	626	--	39	633	1,658	3,207	144	--	761	190	7,258	2,049	5,036	1,867	--	438	--	--
Menominee	943	--	86	555	463	546	651	--	1,467	467	5,177	1,427	3,423	1,607	--	449	--	--
Schoolcraft	906	--	125	1,077	2,833	3,896	530	--	2,154	538	12,057	2,200	8,104	1,396	--	643	--	--
Total	5,919	--	614	6,845	13,150	17,306	2,629	--	7,729	4,352	58,545	14,505	41,617	10,600	--	3,944	--	--
Western Upper Peninsula																		
Baraga	393	--	26	874	516	299	197	--	337	2,465	5,107	2,627	11,251	1,435	--	2,454	--	--
Dickinson	1,204	--	107	1,880	1,373	851	275	--	456	501	6,647	746	2,520	1,254	--	690	--	--
Gogebic	572	--	16	865	285	1,580	252	--	147	384	4,100	1,920	9,746	1,315	--	1,564	--	--
Houghton	703	--	66	1,020	1,028	1,466	173	--	206	711	5,374	3,932	13,847	2,102	--	2,411	--	--
Iron	2,339	--	175	2,909	1,759	1,564	335	--	283	798	10,163	2,959	10,738	2,917	--	3,184	--	--
Keweenaw	149	--	9	464	43	39	194	--	507	204	1,609	911	2,759	919	--	605	--	--
Marquette	2,676	--	283	2,852	6,915	3,125	1,386	--	980	2,965	21,182	4,765	12,738	3,111	--	1,924	--	--
Ontonagon	684	--	12	1,705	1,357	2,461	99	--	96	290	6,705	2,712	10,768	933	--	1,324	--	--
Total	8,719	--	695	12,569	13,277	11,385	2,912	--	3,012	8,318	60,886	20,571	74,367	13,985	--	14,155	--	--
Northern Lower Peninsula																		
Alcona	51	--	--	78	1,545	2,016	327	18	11	--	4,044	1,207	491	362	--	3	--	--
Alpena	229	--	--	195	751	766	507	61	899	--	3,409	1,624	402	455	--	*	--	--
Antrim	12	--	--	1	29	799	35	--	6	--	883	744	4,299	118	--	5	--	--
Arenac	--	--	--	11	53	254	55	--	--	--	373	433	127	75	--	--	--	--
Bay	--	--	--	--	5	13	--	--	--	--	18	104	29	11	--	--	--	--
Benzie	9	--	--	43	93	3,536	19	--	--	62	3,762	491	3,111	75	--	8	--	--
Charlevoix	39	--	--	41	15	1,039	93	--	288	--	1,516	322	3,829	477	--	118	--	--
Cheboygan	125	--	--	55	2,251	2,946	398	15	420	--	6,210	1,270	2,727	263	--	4	--	--
Clare	--	--	--	--	907	2,622	93	--	3	--	3,625	2,608	843	109	--	6	5	--
Crawford	4	--	*	19	6,108	7,160	515	--	4	11	13,821	702	590	151	--	5	--	--
Emmet	33	--	--	23	708	2,497	44	--	98	--	3,402	1,199	4,116	269	--	3	--	--
Gladwin	--	--	--	--	59	638	51	--	--	--	747	1,349	418	145	--	5	1	--
Grand Traverse	--	--	--	--	729	6,034	167	--	5	2	6,937	750	1,888	103	--	15	2	--
Iosco	*	--	--	50	671	3,490	495	--	3	--	4,710	624	170	157	--	*	--	--
Isabella	--	--	--	--	31	296	2	--	--	--	329	1,028	988	28	--	--	--	--
Kalkaska	52	--	--	55	1,970	7,223	313	--	6	32	9,651	973	2,928	113	--	9	--	--
Lake	--	--	--	--	1,233	2,863	100	--	16	1	4,213	1,051	1,078	102	--	2	--	--
Leelanau	5	--	--	13	26	795	82	--	2	28	951	83	2,581	19	--	7	--	--
Manistee	--	--	--	--	448	6,737	218	--	3	2	7,408	1,399	2,792	174	--	9	--	--
Mason	--	--	--	--	256	1,316	42	--	--	--	1,614	1,139	1,832	92	--	2	--	--
Mecosta	--	--	--	13	255	1,656	312	--	--	14	2,250	992	1,660	25	--	1	2	--
Midland	--	--	--	--	3	16	18	--	--	--	38	1,249	367	71	--	1	1	--
Missaukee	42	--	*	145	673	3,476	365	--	10	24	4,734	1,286	1,150	150	--	1	--	--
Montmorency	186	--	--	54	2,202	2,032	308	76	11	--	4,870	1,398	1,129	335	--	--	--	--
Newaygo	--	--	--	--	293	9,575	211	--	--	--	10,079	2,361	2,379	33	--	2	13	--
Oceana	--	--	--	--	1	1,120	40	--	--	8	1,170	878	1,590	30	--	2	--	--
Ogemaw	3	--	--	27	2,520	1,729	133	--	--	--	4,411	1,500	790	309	--	*	--	--
Osceola	10	--	--	16	193	948	63	--	6	4	1,240	1,678	3,646	97	--	5	--	--
Oscoda	80	--	--	52	3,843	3,906	870	30	11	4	8,797	842	978	246	--	*	--	--
Otsego	121	--	--	10	1,072	4,797	272	24	14	1	6,312	1,064	4,866	251	--	12	--	--
Presque Isle	462	--	2	137	1,811	1,795	210	79	318	13	4,827	1,798	513	434	--	2	--	--
Roscommon	79	--	--	62	4,842	3,416	731	--	317	--	9,449	1,200	219	179	--	1	--	--
Wexford	8	--	--	62	1,391	9,813	143	--	6	1	11,424	770	3,844	77	--	2	--	--
Total	1,552	--	3	1,162	36,988	97,319	7,232	305	2,457	207	147,225	36,116	58,374	5,534	--	230	24	--

Forest Survey Unit and county	Balsam fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	Other pine	N. white-cedar	Hemlock	soft-woods	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry
Southern Lower Peninsula																		
Allegan	--	--	--	--	--	11	5	--	--	--	15	592	186	--	--	--	34	4
Barry	--	--	--	--	29	253	48	--	--	--	330	520	2,419	--	6	--	127	6
Berrien	--	--	--	--	--	--	--	--	--	--	--	44	1,050	--	17	--	3	5
Branch	--	--	--	--	--	--	--	--	--	--	--	567	148	--	--	--	26	--
Calhoun	--	--	--	--	--	26	51	--	--	--	77	498	209	--	5	--	212	4
Cass	--	--	--	--	--	--	--	--	--	--	--	359	335	--	5	--	73	5
Clinton	--	--	--	--	--	--	--	--	--	--	--	383	11	--	--	--	33	--
Eaton	--	--	--	--	--	--	--	--	--	--	--	179	1,296	--	--	--	92	--
Genesee	--	17	--	--	--	--	1	--	--	--	18	98	547	--	--	--	10	--
Gratiot	--	--	--	--	--	--	6	--	--	--	6	419	230	1	--	--	1	--
Hillsdale	--	--	--	--	--	--	--	--	--	--	--	60	1,165	--	--	--	18	--
Huron	--	*	--	--	--	--	--	--	--	--	*	269	3	--	--	--	--	--
Ingham	--	--	--	--	--	--	--	--	--	--	--	289	404	--	--	--	52	--
Ionia	--	--	--	--	--	209	--	--	--	--	209	80	542	--	--	--	46	--
Jackson	--	--	--	--	--	1	--	--	--	--	1	103	--	--	6	--	257	4
Kalamazoo	--	--	--	--	--	170	2	--	--	--	172	475	147	--	--	--	49	2
Kent	74	--	--	18	--	78	6	--	8	--	184	888	3,209	1	9	--	11	2
Lapeer	--	32	--	--	--	45	4	--	--	--	81	248	463	1	--	--	13	--
Lenawee	--	--	--	--	--	30	15	--	--	--	45	62	1,364	--	--	--	170	--
Livingston	--	--	--	--	--	--	--	--	--	--	--	207	19	--	--	--	73	--
Macomb	--	5	--	--	--	--	--	--	--	--	5	63	107	--	--	--	13	--
Monroe	--	--	--	--	--	--	--	--	--	--	--	54	110	--	--	--	83	--
Montcalm	--	--	--	--	84	301	47	--	--	--	431	812	449	3	3	--	5	--
Muskegon	--	4	--	--	5	1,066	134	--	--	--	1,209	1,118	61	--	--	--	1	--
Oakland	--	36	--	--	--	2	2	--	--	--	41	282	718	--	--	--	105	--
Ottawa	--	--	--	--	1	349	18	--	--	--	368	495	590	--	--	--	2	--
Saginaw	--	--	--	--	--	--	3	--	--	--	3	361	308	1	--	--	34	--
Sanilac	--	--	--	--	2	22	2	--	--	--	26	105	--	10	--	--	--	--
Shiawassee	--	--	--	--	--	--	--	--	--	--	--	145	376	--	--	--	10	--
St. Clair	--	51	--	--	--	*	30	--	--	--	82	321	174	--	--	--	10	--
St. Joseph	--	--	--	--	--	169	169	--	--	--	338	249	209	--	3	--	162	2
Tuscola	--	19	--	--	--	19	5	--	--	--	43	204	322	1	--	--	2	--
Van Buren	--	--	--	--	--	--	1	--	--	--	1	692	1,390	--	9	--	86	4
Washtenaw	--	--	--	1	--	--	1	--	--	--	3	100	25	--	3	--	165	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	35	14	--	--	--	10	--
Total	74	165	--	19	121	2,751	551	--	8	--	3,689	11,378	18,600	19	66	--	1,990	37
State total	16,264	165	1,312	20,595	63,536	128,761	13,324	305	13,206	12,877	270,345	82,571	192,959	30,138	66	18,329	2,014	37

(Table 21 continued on next page)

(Table 21 continued)

Forest Survey Unit and county	Beech	Ash	Butter-nut	Black walnut	Yellow-poplar	Syca-more	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Willow	Sassa-fras	Bass-wood	Elm	Other hard-woods	Total hard-woods	All species
Eastern Upper Peninsula																				
Alger	586	325	*	--	--	--	--	138	2,493	123	143	9	--	--	--	270	1	115	18,310	26,118
Chippewa	136	128	--	--	--	--	--	649	7,630	15	118	2	--	--	--	52	*	30	15,576	25,203
Delta	184	375	*	--	--	--	--	773	6,732	186	217	15	--	--	--	938	2	100	20,848	31,672
Luce	598	175	*	--	--	--	--	51	2,791	65	19	1	--	--	--	92	*	57	13,628	19,420
Mackinac	261	234	*	--	--	--	--	638	6,311	77	97	--	--	--	--	174	1	61	17,244	24,502
Menominee	57	595	--	--	--	--	*	211	9,215	15	467	4	--	--	--	637	3	57	18,168	23,346
Schoolcraft	606	168	*	--	--	--	--	178	3,912	81	17	--	--	--	--	188	*	74	17,567	29,624
Total	2,428	2,001	1	--	--	--	*	2,638	39,084	561	1,077	30	--	--	--	2,352	7	495	121,340	179,885
Western Upper Peninsula																				
Baraga	70	355	4	--	--	--	--	254	3,985	172	359	18	--	--	--	1,087	4	48	24,124	29,231
Dickinson	24	108	--	--	--	--	*	315	8,217	15	322	1	--	--	--	675	5	26	14,918	21,565
Gogebic	*	808	*	--	--	--	1	119	7,628	108	310	9	--	--	--	1,505	9	66	25,108	29,208
Houghton	60	525	*	--	--	--	*	371	7,001	79	711	3	--	--	--	1,660	8	78	32,788	38,161
Iron	82	378	4	--	--	--	1	567	11,113	272	729	19	--	--	--	2,308	7	76	35,353	45,516
Keweenaw	--	42	--	--	--	--	--	*	768	--	756	*	--	--	--	111	*	16	6,887	8,496
Marquette	263	391	*	--	--	--	*	715	13,547	166	1,462	27	--	--	--	945	4	304	40,362	61,544
Ontonagon	4	1,207	--	--	--	--	2	364	14,135	29	324	3	--	--	--	2,609	7	33	34,455	41,160
Total	503	3,814	9	--	--	--	5	2,706	66,394	840	4,972	80	--	--	--	10,901	44	647	213,994	274,881
Northern Lower Peninsula																				
Alcona	96	417	--	--	--	--	--	179	7,329	26	3,939	171	--	--	--	197	1	--	14,418	18,463
Alpena	50	354	--	--	--	--	--	55	5,758	1	1,200	54	--	--	--	245	*	2	10,202	13,611
Antrim	247	358	--	--	--	--	4	8	2,250	32	340	6	--	--	--	1,836	14	13	10,273	11,156
Arenac	5	338	--	--	--	--	58	12	1,660	2	439	21	--	--	--	13	*	1	3,184	3,557
Bay	--	169	--	--	--	--	24	--	229	17	3	25	--	--	--	4	--	--	615	633
Benzie	275	250	--	--	--	--	--	68	874	70	782	16	--	--	--	499	3	19	6,540	10,302
Charlevoix	298	527	--	--	--	--	--	1	1,386	9	149	*	--	--	--	1,684	1	1	8,802	10,318
Cheboygan	148	202	--	--	--	--	--	31	5,471	3	460	15	--	--	--	1,409	1	2	12,004	18,215
Clare	39	237	--	--	--	--	23	3	5,218	116	7,636	485	--	--	--	153	3	6	17,490	21,115
Crawford	71	22	--	--	--	--	--	23	3,297	5	2,183	83	--	--	--	110	--	--	7,242	21,063
Emmet	444	310	--	--	--	--	--	1	2,773	83	206	1	--	--	--	1,179	*	2	10,587	13,990
Gladwin	2	338	--	--	--	--	63	34	4,906	14	1,181	135	--	--	--	44	2	*	8,638	9,385
Grand Traverse	90	162	--	--	--	--	--	9	1,411	52	932	106	--	--	--	341	1	8	5,871	12,807
Iosco	3	394	--	--	--	--	7	26	2,809	12	829	95	--	--	--	27	2	3	5,159	9,869
Isabella	9	188	--	4	--	--	40	17	2,487	20	1,265	120	--	3	--	46	--	--	6,243	6,572
Kalkaska	171	108	--	--	--	--	--	14	1,881	76	707	14	--	--	--	869	1	8	7,872	17,524
Lake	197	332	--	--	--	--	--	85	1,416	106	8,124	641	--	--	--	286	10	35	13,463	17,676
Leelanau	214	503	--	--	--	--	--	28	290	32	758	7	--	--	--	443	1	--	4,965	5,917
Manistee	249	304	--	--	--	--	2	47	1,802	249	2,054	323	--	--	--	272	6	42	9,725	17,133
Mason	72	224	--	--	--	--	--	37	1,551	102	3,424	372	--	--	--	166	2	16	9,030	10,644
Mecosta	68	404	--	1	--	--	--	87	2,902	125	749	114	--	6	--	142	3	4	7,287	9,537
Midland	51	321	--	--	--	--	179	58	1,862	11	970	478	--	--	--	181	17	11	5,828	5,866
Missaukee	69	259	--	--	--	--	2	26	3,264	42	1,092	70	--	--	--	124	2	12	7,549	12,283
Montmorency	113	343	--	--	--	--	--	95	6,481	10	2,806	75	--	--	--	1,093	--	--	13,879	18,748
Newaygo	118	349	--	4	--	--	--	49	1,656	284	6,414	879	--	27	--	270	3	13	14,853	24,932
Oceana	318	345	--	--	--	--	8	95	1,089	253	2,949	192	--	--	--	235	1	6	7,990	9,160
Ogemaw	29	229	--	1	--	--	--	1,043	3,969	3	2,212	108	--	--	--	104	1	4	10,303	14,715
Osceola	198	550	--	--	--	--	7	92	3,453	223	2,591	89	--	--	--	234	7	27	12,896	14,136
Oscoda	73	196	--	--	--	--	--	49	4,910	56	3,444	82	--	--	--	344	*	1	11,220	20,017
Otsego	444	182	--	--	--	--	--	7	4,290	12	859	24	--	--	--	3,106	3	1	15,121	21,433
Presque Isle	65	266	--	--	--	--	--	71	5,042	--	1,318	50	--	--	--	350	--	--	9,909	14,736
Roscommon	22	156	--	--	--	--	--	21	3,881	11	3,470	334	--	--	--	62	2	14	9,570	19,018
Wexford	305	351	--	--	--	--	--	100	1,826	159	1,608	19	--	--	--	491	8	16	9,577	21,001
Total	4,551	9,688	--	11	--	--	418	2,469	99,424	2,215	67,089	5,204	--	35	--	16,559	97	267	308,306	455,530

Forest Survey Unit and county	Beech	Ash	Butter-nut	Black walnut	Yellow-poplar	Syca-more	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Willow	Sassa-fras	Bass-wood	Elm	Other hard-woods	Total hard-woods	All species
Southern Lower Peninsula																				
Allegan	97	605	*	40	787	--	59	1	484	435	2,243	1,039	1	--	4	45	3	1	6,660	6,675
Barry	167	221	*	57	1	--	27	--	132	785	2,736	554	1	--	5	293	3	2	8,062	8,391
Berrien	29	25	*	1	258	245	13	--	71	349	116	40	1	--	4	26	41	1	2,339	2,339
Branch	--	207	--	16	50	--	123	--	102	65	123	192	--	--	--	36	7	--	1,662	1,662
Calhoun	32	432	*	--	43	--	34	2	73	645	694	334	1	--	3	359	16	1	3,596	3,673
Cass	22	150	*	111	7	--	74	--	59	488	798	215	1	--	4	49	129	2	2,885	2,885
Clinton	--	33	--	41	--	--	--	--	8	163	154	64	--	1	--	45	1	--	938	938
Eaton	97	353	--	107	--	--	167	--	65	150	249	174	--	--	--	364	21	--	3,313	3,313
Genesee	14	113	--	36	--	--	27	--	39	15	330	94	--	--	--	69	6	--	1,398	1,417
Gratiot	--	128	--	--	--	--	43	21	404	4	482	128	--	1	--	103	3	--	1,970	1,977
Hillsdale	--	94	--	55	--	--	--	--	47	105	148	42	--	--	--	60	--	--	1,795	1,795
Huron	--	101	--	--	--	--	367	--	166	4	35	--	--	--	--	18	--	--	962	962
Ingham	27	175	--	1	--	--	11	--	38	74	145	57	--	--	--	91	8	--	1,372	1,372
Ionia	289	75	--	15	--	--	74	--	127	219	678	52	--	4	--	251	1	--	2,456	2,666
Jackson	--	158	*	117	--	--	--	--	30	497	1,415	679	1	--	3	99	1	1	3,372	3,373
Kalamazoo	12	145	*	22	18	--	53	2	123	278	629	232	*	--	2	1	79	*	2,269	2,441
Kent	69	257	*	36	1	--	--	7	473	305	3,107	826	*	11	2	174	4	*	9,392	9,575
Lapeer	--	89	--	3	--	--	101	--	82	13	288	228	--	--	--	10	3	--	1,542	1,623
Lenawee	61	57	--	58	10	--	--	--	49	85	164	88	--	--	--	272	--	--	2,440	2,485
Livingston	--	106	--	--	--	--	1	--	33	317	1,216	715	--	--	--	10	1	--	2,699	2,699
Macomb	19	35	--	--	1	--	23	--	9	17	28	27	--	--	--	19	--	--	361	366
Monroe	--	71	--	79	4	--	12	--	19	40	184	193	--	--	--	49	--	--	898	898
Montcalm	61	467	--	6	--	--	7	8	905	80	2,772	1,050	--	21	--	72	33	--	6,753	7,184
Muskegon	306	137	--	1	--	--	--	--	373	91	4,335	744	--	--	--	41	--	--	7,208	8,418
Oakland	32	223	--	10	--	--	27	1	55	211	1,022	428	--	--	--	66	10	--	3,189	3,231
Ottawa	256	189	--	--	3	--	153	--	167	49	1,385	334	--	--	--	27	4	--	3,655	4,023
Saginaw	--	404	--	--	1	--	77	--	119	4	538	510	--	--	--	5	3	--	2,366	2,369
Sanilac	--	109	--	--	--	--	20	--	217	9	24	1	--	--	--	14	--	--	508	534
Shiawassee	13	243	--	19	--	--	6	--	39	52	234	74	--	--	--	63	1	--	1,275	1,275
St. Clair	28	201	--	--	--	--	197	--	32	24	737	298	--	--	--	27	--	--	2,048	2,130
St. Joseph	--	261	*	343	6	--	21	--	136	341	1,117	153	*	--	2	35	43	6	3,090	3,428
Tuscola	1	148	--	--	--	--	171	--	439	18	150	63	--	--	--	47	3	--	1,569	1,612
Van Buren	152	234	*	6	2	--	65	--	256	773	1,326	540	1	--	4	42	114	1	5,696	5,698
Washtenaw	--	74	--	290	--	--	1	--	43	180	698	935	--	--	--	18	1	--	2,533	2,535
Wayne	4	23	--	--	7	--	--	--	1	3	197	143	--	--	--	68	8	--	512	512
Total	1,789	6,342	1	1,469	1,198	245	1,953	43	5,416	6,889	30,494	11,247	6	39	32	2,969	547	16	102,785	106,474
State total	9,272	21,845	10	1,479	1,198	245	2,375	7,857	210,318	10,506	103,633	16,561	6	75	32	32,780	695	1,425	746,425	1,016,771

[1] *International 1/4-inch rule.*

** = Less than 500 board feet.*

Rows and columns may not sum due to rounding.

Table 22.--Harvest residues generated by industrial roundwood harvesting by Forest Survey Unit, county, and species group, Michigan, 1996

(In thousand cubic feet)

Forest Survey Unit and county	Balsam fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	Other pine	N. white-cedar	Hemlock	Total soft-woods	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry
Eastern Upper Peninsula																		
Alger	119	--	15	233	148	218	30	--	41	125	929	390	1,198	245	--	134	--	--
Chippewa	144	--	14	135	351	368	22	--	59	77	1,170	220	447	141	--	46	--	--
Delta	149	--	17	127	342	265	32	--	245	118	1,294	352	955	311	--	150	--	--
Luce	33	--	3	77	219	230	23	--	16	173	773	262	701	127	--	68	--	--
Mackinac	63	--	5	70	114	249	11	--	75	30	618	256	647	214	--	81	--	--
Menominee	115	--	11	65	68	56	47	--	165	73	600	201	529	217	--	93	--	--
Schoolcraft	117	--	16	135	416	471	42	--	221	84	1,503	313	968	188	--	100	--	--
Total	740	--	80	842	1,657	1,858	206	--	822	681	6,886	1,993	5,444	1,445	--	671	--	--
Western Upper Peninsula																		
Baraga	50	--	3	106	69	40	17	--	35	378	698	312	1,193	211	--	263	--	--
Dickinson	156	--	14	240	197	102	24	--	51	78	863	123	433	179	--	159	--	--
Gogebic	69	--	2	96	30	103	15	--	16	44	376	266	1,194	226	--	227	--	--
Houghton	90	--	9	127	142	141	13	--	22	101	646	475	1,729	349	--	388	--	--
Iron	302	--	23	368	248	212	32	--	34	120	1,338	419	1,498	402	--	427	--	--
Keweenaw	18	--	1	56	6	5	12	--	51	32	183	102	377	116	--	104	--	--
Marquette	346	--	37	357	971	405	105	--	112	464	2,798	696	1,957	451	--	371	--	--
Ontonagon	85	--	2	216	199	171	10	--	11	40	733	315	1,330	144	--	194	--	--
Total	1,117	--	91	1,566	1,862	1,179	229	--	332	1,258	7,634	2,708	9,712	2,078	--	2,134	--	--
Northern Lower Peninsula																		
Alcona	2	--	--	3	59	108	14	*	1	--	187	133	39	52	--	*	--	--
Alpena	6	--	--	6	40	55	26	1	109	--	242	157	28	41	--	*	--	--
Antrim	*	--	--	*	4	44	1	--	1	--	50	55	269	10	--	*	--	--
Arenac	--	--	--	*	3	15	2	--	--	--	20	39	11	11	--	--	--	--
Bay	--	--	--	--	1	2	--	--	--	--	3	8	2	2	--	--	--	--
Benzie	*	--	--	1	13	197	1	--	--	4	216	42	196	12	--	1	--	--
Charlevoix	4	--	--	4	2	60	5	--	28	--	104	26	252	30	--	6	--	--
Cheboygan	4	--	--	3	67	182	22	*	40	--	319	163	165	23	--	*	--	--
Clare	--	--	--	--	113	162	5	--	*	--	281	232	104	19	--	1	*	--
Crawford	*	--	*	1	324	709	33	--	*	1	1,069	76	80	12	--	1	--	--
Emmet	2	--	--	2	9	149	2	--	9	--	174	160	264	23	--	*	--	--
Gladwin	--	--	--	--	8	38	3	--	--	--	48	131	48	23	--	1	*	--
Grand Traverse	--	--	--	--	68	366	6	--	*	*	440	60	120	14	--	1	*	--
Iosco	*	--	--	1	60	196	25	--	*	--	282	59	15	25	--	*	--	--
Isabella	--	--	--	--	5	20	*	--	--	--	25	124	144	5	--	--	--	--
Kalkaska	1	--	--	1	88	404	15	--	1	3	514	94	199	12	--	1	--	--
Lake	--	--	--	--	65	157	6	--	2	*	230	68	65	11	--	*	--	--
Leelanau	*	--	--	*	3	40	2	--	*	2	47	7	147	1	--	*	--	--
Manistee	--	--	--	--	23	374	7	--	*	*	405	128	238	27	--	1	--	--
Mason	--	--	--	--	9	71	2	--	--	--	83	86	133	13	--	*	--	--
Mecosta	--	--	--	1	29	108	18	--	--	1	157	125	181	3	--	*	*	--
Midland	--	--	--	--	1	1	1	--	--	--	3	116	48	13	--	*	*	--
Missaukee	1	--	*	3	64	209	18	--	1	2	298	141	99	23	--	*	--	--
Montmorency	4	--	--	2	111	115	15	2	1	--	249	169	80	41	--	--	--	--
Newaygo	--	--	--	--	28	553	12	--	--	--	594	206	229	3	--	*	1	--
Oceana	--	--	--	--	*	65	2	--	--	*	68	66	110	4	--	*	--	--
Ogemaw	*	--	--	1	145	104	6	--	--	--	256	116	55	25	--	*	--	--
Osceola	*	--	--	*	17	50	2	--	1	*	71	195	324	11	--	1	--	--
Oscoda	2	--	--	2	212	211	44	1	1	*	473	73	59	25	--	*	--	--
Otsego	9	--	--	1	64	286	16	*	1	*	378	78	302	19	--	1	--	--
Presque Isle	25	--	*	14	91	131	12	2	30	2	307	264	35	47	--	*	--	--
Roscommon	1	--	--	1	285	210	39	--	33	--	569	147	34	24	--	*	--	--
Wexford	*	--	--	1	117	563	6	--	1	*	688	79	244	12	--	*	--	--
Total	62	--	*	50	2,127	5,958	370	6	261	15	8,849	3,623	4,318	616	--	19	2	--

Forest Survey Unit and county	Balsam fir	Red-cedar	Tama-rack	Spruce	Jack pine	Red pine	White pine	Other pine	N. white-cedar	Hemlock	Total soft-woods	Soft maple	Hard maple	White birch	River birch	Yellow birch	Hickory	Hack-berry
Southern Lower Peninsula																		
Allegan	--	--	--	--	--	1	*	--	--	--	1	32	10	--	--	--	2	*
Barry	--	--	--	--	3	15	3	--	--	--	20	31	148	--	*	--	7	*
Berrien	--	--	--	--	--	--	--	--	--	--	--	3	68	--	1	--	*	*
Branch	--	--	--	--	--	--	--	--	--	--	--	34	8	--	--	--	1	--
Calhoun	--	--	--	--	--	1	3	--	--	--	4	30	12	--	*	--	11	*
Cass	--	--	--	--	--	--	--	--	--	--	--	21	19	--	*	--	4	*
Clinton	--	--	--	--	--	--	--	--	--	--	--	23	1	--	--	--	2	--
Eaton	--	--	--	--	--	--	--	--	--	--	--	11	73	--	--	--	5	--
Genesee	--	2	--	--	--	--	*	--	--	--	2	6	34	--	--	--	1	--
Gratiot	--	--	--	--	--	--	*	--	--	--	*	45	41	*	--	--	*	--
Hillsdale	--	--	--	--	--	--	--	--	--	--	--	4	69	--	--	--	1	--
Huron	--	*	--	--	--	--	--	--	--	--	*	16	*	--	--	--	--	--
Ingham	--	--	--	--	--	--	--	--	--	--	--	17	23	--	--	--	3	--
Ionia	--	--	--	--	--	12	--	--	--	--	12	5	30	--	--	--	2	--
Jackson	--	--	--	--	--	*	--	--	--	--	*	6	--	--	*	--	14	*
Kalamazoo	--	--	--	--	--	10	*	--	--	--	10	28	8	--	--	--	3	*
Kent	1	--	--	*	--	4	*	--	*	--	6	57	205	*	1	--	1	*
Lapeer	--	3	--	--	--	3	*	--	--	--	6	15	31	*	--	--	1	--
Lenawee	--	--	--	--	--	2	1	--	--	--	3	4	81	--	--	--	9	--
Livingston	--	--	--	--	--	--	--	--	--	--	--	12	1	--	--	--	4	--
Macomb	--	*	--	--	--	--	--	--	--	--	*	4	6	--	--	--	1	--
Monroe	--	--	--	--	--	--	--	--	--	--	--	3	6	--	--	--	4	--
Montcalm	--	--	--	--	10	17	3	--	--	--	30	65	48	*	*	--	*	--
Muskegon	--	*	--	--	1	62	8	--	--	--	70	66	4	--	--	--	*	--
Oakland	--	4	--	--	--	*	*	--	--	--	4	17	40	--	--	--	6	--
Ottawa	--	--	--	--	*	20	1	--	--	--	21	29	41	--	--	--	*	--
Saginaw	--	--	--	--	--	--	*	--	--	--	*	22	17	*	--	--	2	--
Sanilac	--	--	--	--	*	4	*	--	--	--	4	11	--	2	--	--	--	--
Shiawassee	--	--	--	--	--	--	--	--	--	--	--	9	21	--	--	--	1	--
St. Clair	--	5	--	--	--	*	2	--	--	--	7	19	10	--	--	--	1	--
St. Joseph	--	--	--	--	--	10	10	--	--	--	20	14	12	--	*	--	9	*
Tuscola	--	2	--	--	--	2	*	--	--	--	4	13	22	*	--	--	*	--
Van Buren	--	--	--	--	--	--	*	--	--	--	*	40	83	--	1	--	5	*
Washtenaw	--	--	--	*	--	--	*	--	--	--	*	6	1	--	*	--	9	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	2	1	--	--	--	1	--
Total	1	16	--	*	14	162	32	--	*	--	225	718	1,177	3	5	--	106	2
State total	1,919	16	172	2,459	5,660	9,157	837	6	1,415	1,954	23,595	9,042	20,651	4,141	5	2,824	108	2

(Table 22 continued on next page)

(Table 22 continued)

Forest Survey Unit and county	Beech	Ash	Butter-nut	Black walnut	Yellow-poplar	Syca-more	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Willow	Sassa-fras	Bass-wood	Elm	Other hard-woods	Total hard-woods	All species
Eastern Upper Peninsula																				
Alger	47	69	*	--	--	--	--	27	284	11	11	*	--	--	--	32	*	35	2,484	3,412
Chippewa	21	20	--	--	--	--	--	128	786	3	7	*	--	--	--	7	*	12	1,839	3,009
Delta	26	62	*	--	--	--	--	82	704	15	14	1	--	--	--	74	*	34	2,781	4,076
Luce	41	35	*	--	--	--	--	10	236	6	3	*	--	--	--	13	*	17	1,519	2,292
Mackinac	23	39	*	--	--	--	--	126	626	7	7	--	--	--	--	19	*	20	2,065	2,683
Menominee	10	58	--	--	--	--	*	42	752	3	24	*	--	--	--	50	*	17	1,996	2,595
Schoolcraft	54	36	*	--	--	--	--	35	454	10	4	--	--	--	--	23	*	31	2,216	3,719
Total	221	321	*	--	--	--	*	450	3,843	53	71	1	--	--	--	219	1	167	14,900	21,786
Western Upper Peninsula																				
Baraga	16	37	*	--	--	--	--	50	477	13	35	2	--	--	--	95	*	20	2,724	3,421
Dickinson	5	16	--	--	--	--	*	60	958	2	28	1	--	--	--	66	1	9	2,039	2,902
Gogebic	*	86	*	--	--	--	*	23	656	7	56	4	--	--	--	137	1	13	2,898	3,273
Houghton	14	55	*	--	--	--	*	70	677	8	74	1	--	--	--	154	1	25	4,022	4,668
Iron	18	49	*	--	--	--	*	112	1,284	20	69	2	--	--	--	200	1	28	4,528	5,866
Keweenaw	--	8	--	--	--	--	--	*	50	--	53	*	--	--	--	20	*	3	834	1,017
Marquette	63	51	*	--	--	--	*	141	1,615	22	110	2	--	--	--	113	1	80	5,674	8,472
Ontonagon	1	155	--	--	--	--	*	66	1,098	2	41	1	--	--	--	254	1	7	3,610	4,343
Total	118	458	1	--	--	--	1	523	6,814	74	466	13	--	--	--	1,038	5	185	26,328	33,962
Northern Lower Peninsula																				
Alcona	8	42	--	--	--	--	--	35	694	2	162	7	--	--	--	15	*	--	1,188	1,375
Alpena	4	34	--	--	--	--	--	11	502	*	45	2	--	--	--	15	*	*	841	1,083
Antrim	14	24	--	--	--	--	*	2	143	2	24	3	--	--	--	112	1	2	662	712
Arenac	1	21	--	--	--	--	3	2	136	*	19	1	--	--	--	1	*	*	246	266
Bay	--	9	--	--	--	--	1	--	25	1	*	1	--	--	--	*	--	--	49	52
Benzie	17	21	--	--	--	--	--	6	85	4	47	4	--	--	--	33	1	4	471	687
Charlevoix	17	29	--	--	--	--	--	*	90	1	7	*	--	--	--	119	*	*	577	680
Cheboygan	9	17	--	--	--	--	--	6	386	*	19	1	--	--	--	92	*	*	881	1,201
Clare	3	14	--	--	--	--	1	1	505	7	324	23	--	--	--	10	*	1	1,245	1,526
Crawford	6	3	--	--	--	--	--	5	228	*	91	4	--	--	--	10	--	--	516	1,585
Emmet	26	18	--	--	--	--	--	*	139	5	10	*	--	--	--	100	*	*	747	921
Gladwin	1	21	--	--	--	--	4	5	446	1	50	6	--	--	--	4	*	*	741	789
Grand Traverse	6	12	--	--	--	--	--	2	129	3	45	6	--	--	--	26	*	2	426	866
Iosco	1	24	--	--	--	--	*	5	246	1	37	4	--	--	--	3	*	1	420	702
Isabella	2	15	--	*	--	--	2	3	285	1	53	5	--	*	--	4	--	--	644	669
Kalkaska	11	10	--	--	--	--	--	3	129	5	36	2	--	--	--	62	*	2	564	1,078
Lake	11	21	--	--	--	--	--	5	128	6	349	29	--	--	--	18	1	3	714	944
Leelanau	11	26	--	--	--	--	--	2	23	2	32	*	--	--	--	27	*	--	279	326
Manistee	20	33	--	--	--	--	*	8	172	15	116	34	--	--	--	26	1	7	826	1,231
Mason	10	17	--	--	--	--	--	5	127	6	154	27	--	--	--	14	*	2	594	677
Mecosta	9	34	--	*	--	--	--	17	311	8	35	17	--	*	--	12	*	*	753	910
Midland	8	24	--	--	--	--	11	6	185	1	50	23	--	--	--	13	1	2	502	505
Missaukee	7	19	--	--	--	--	*	5	349	3	54	7	--	--	--	10	*	2	720	1,018
Montmorency	10	54	--	--	--	--	--	19	645	1	109	2	--	--	--	88	--	--	1,219	1,468
Newaygo	12	24	--	*	--	--	--	9	182	17	276	44	--	2	--	18	*	1	1,024	1,618
Oceana	27	22	--	--	--	--	1	9	86	15	127	12	--	--	--	15	*	1	494	562
Ogemaw	3	19	--	*	--	--	--	66	314	*	96	7	--	--	--	7	*	1	708	963
Osceola	22	43	--	--	--	--	*	18	351	13	119	27	--	--	--	19	1	2	1,144	1,216
Oscoda	5	19	--	--	--	--	--	7	350	3	141	3	--	--	--	25	*	*	711	1,184
Otsego	24	14	--	--	--	--	--	1	275	1	34	2	--	--	--	230	*	*	980	1,358
Presque Isle	5	33	--	--	--	--	--	14	467	--	45	1	--	--	--	21	--	--	933	1,240
Roscommon	4	16	--	--	--	--	--	4	379	1	156	16	--	--	--	7	*	3	792	1,362
Wexford	19	27	--	--	--	--	--	10	155	10	79	4	--	--	--	35	1	3	678	1,366
Total	331	756	--	1	--	--	25	289	8,664	134	2,943	325	--	2	--	1,191	9	40	23,288	32,137

Forest Survey Unit and county	Beech	Ash	Butternut	Black walnut	Yellow-poplar	Syca-more	Cotton-wood	Balsam poplar	Aspen	Black cherry	Red oak group	White oak group	Black locust	Willow	Sassa-fras	Bass-wood	Elm	Other hard-woods	Total hard-woods	All species
Southern Lower Peninsula																				
Allegan	5	32	*	2	47	--	5	*	9	26	97	47	*	--	*	3	*	*	319	320
Barry	9	12	*	3	*	--	2	--	6	48	119	25	*	--	*	18	*	*	428	448
Berrien	2	1	*	*	15	15	1	--	3	23	5	2	*	--	*	2	2	*	143	143
Branch	--	11	--	1	3	--	9	--	3	4	5	8	--	--	--	2	*	--	90	90
Calhoun	2	23	*	--	3	--	3	*	3	39	29	14	*	--	*	21	1	*	191	196
Cass	1	8	*	7	*	--	6	--	2	30	34	9	*	--	*	3	8	*	152	152
Clinton	--	2	--	3	--	--	--	--	*	10	7	3	--	*	--	3	*	--	52	52
Eaton	5	19	--	6	--	--	12	--	4	9	10	7	--	--	--	22	1	--	184	184
Genesee	1	6	--	2	--	--	2	--	2	1	14	4	--	--	--	4	*	--	77	78
Gratiot	--	10	--	--	--	--	3	4	53	*	20	5	--	*	--	8	*	--	192	192
Hillsdale	--	5	--	3	--	--	--	--	3	6	6	2	--	--	--	4	--	--	103	103
Huron	--	5	--	--	--	--	22	--	10	*	1	--	--	--	--	1	--	--	56	56
Ingham	1	9	--	*	--	--	1	--	2	4	6	2	--	--	--	5	*	--	75	75
Ionia	15	4	--	1	--	--	5	--	7	13	29	2	--	*	--	15	*	--	130	142
Jackson	--	8	*	7	--	--	--	--	2	30	62	30	*	--	*	6	*	*	166	166
Kalamazoo	2	8	*	1	1	--	4	*	7	17	27	11	*	--	*	*	5	*	122	132
Kent	5	16	*	2	*	--	--	1	28	19	140	37	*	1	*	10	*	*	524	530
Lapeer	--	5	--	*	--	--	6	--	5	1	12	10	--	--	--	1	*	--	86	92
Lenawee	3	3	--	3	1	--	--	--	3	5	7	4	--	--	--	16	--	--	139	142
Livingston	--	6	--	--	--	--	*	--	2	19	53	32	--	--	--	1	*	--	130	130
Macomb	1	2	--	--	*	--	1	--	1	1	1	1	--	--	--	1	--	--	20	20
Monroe	--	4	--	5	*	--	1	--	1	2	8	8	--	--	--	3	--	--	46	46
Montcalm	5	28	--	*	--	--	1	2	93	5	125	47	--	1	--	4	2	--	429	459
Muskegon	16	8	--	*	--	--	--	--	17	6	192	31	--	--	--	2	--	--	343	413
Oakland	2	12	--	1	--	--	2	*	3	13	44	19	--	--	--	4	1	--	163	167
Ottawa	14	11	--	--	*	--	11	--	9	3	61	14	--	--	--	2	*	--	195	216
Saginaw	--	21	--	--	*	--	5	--	7	*	23	22	--	--	--	*	*	--	120	120
Sanilac	--	6	--	--	--	--	1	--	21	1	1	*	--	--	--	1	--	--	43	47
Shiawassee	1	13	--	1	--	--	*	--	2	3	10	3	--	--	--	4	*	--	68	68
St. Clair	1	11	--	--	--	--	12	--	2	1	31	13	--	--	--	2	--	--	102	109
St. Joseph	--	14	*	21	*	--	1	--	5	21	47	6	*	--	*	2	3	1	156	176
Tuscola	*	8	--	--	--	--	10	--	38	1	6	3	--	--	--	3	*	--	104	107
Van Buren	10	12	*	*	*	--	5	--	5	50	57	24	*	--	*	2	7	*	301	302
Washtenaw	--	4	--	17	--	--	*	--	2	11	29	43	--	--	--	1	*	--	124	125
Wayne	*	1	--	--	*	--	--	--	*	*	8	6	--	--	--	4	*	--	24	24
Total	101	348	*	85	72	15	131	8	360	423	1,327	497	*	2	2	179	33	2	5,595	5,820
State total	771	1,882	1	86	72	15	157	1,271	19,682	685	4,807	836	*	4	2	2,627	48	394	70,111	93,706

** = Less than 500 cubic feet.*

Rows and columns may not sum due to rounding.

Table 23.--Residues produced at primary wood-using mills by Forest Survey Unit, type of use, and residue type, Michigan, 1996

(In thousand tons, green weight)

Forest Survey Unit and type of use	Wood residue						Bark	
	Total		Coarse[1]		Fine [2]			
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Eastern Upper Peninsula								
Fiber products	2.69	69.74	2.59	68.73	0.10	1.02	--	--
Charcoal	--	3.13	--	--	--	3.13	--	--
Industrial fuel-mill	42.82	47.88	0.11	0.10	42.71	47.78	95.72	117.77
Industrial fuel-sold	4.11	27.54	2.33	3.84	1.79	23.70	3.06	26.25
Domestic fuel	2.61	6.63	2.60	6.61	0.01	0.02	0.97	3.83
Miscellaneous [3]	20.69	7.14	10.42	0.02	10.26	7.13	5.23	14.44
Not used	0.85	0.26	0.75	0.26	0.10	--	0.28	--
Total	73.77	162.32	18.80	79.55	54.97	82.77	105.26	162.28
Western Upper Peninsula								
Fiber products	3.84	73.95	3.74	71.69	0.10	2.26	--	--
Charcoal	*	1.10	--	--	*	1.10	--	--
Industrial fuel-mill	3.68	63.13	*	0.12	3.68	63.02	0.01	206.74
Industrial fuel-sold	1.09	52.24	0.07	13.11	1.02	39.13	2.02	92.21
Domestic fuel	0.61	3.64	0.61	3.64	*	*	0.20	1.55
Miscellaneous [3]	0.58	4.80	0.16	--	0.42	4.80	0.06	--
Not used	0.78	1.10	0.68	0.68	0.10	0.42	0.21	0.29
Total	10.58	199.96	5.25	89.24	5.33	110.73	2.50	300.79
Northern Lower Peninsula								
Fiber products	49.88	144.82	49.88	144.82	--	--	--	0.67
Industrial fuel-mill	15.87	7.39	6.97	2.68	8.90	4.71	7.06	41.78
Industrial fuel-sold	66.47	149.96	20.12	65.99	46.35	83.96	12.50	71.72
Domestic fuel	3.17	51.20	3.17	50.85	*	0.35	1.25	8.18
Miscellaneous [3]	105.70	119.07	65.05	23.00	40.65	96.07	49.82	129.74
Not used	1.68	6.13	1.35	4.60	0.33	1.53	0.51	1.90
Total	242.76	478.57	146.53	291.95	96.23	186.62	71.14	253.99
Southern Lower Peninsula								
Fiber products	--	67.54	--	67.54	--	--	--	--
Industrial fuel-mill	0.01	46.02	0.01	5.29	*	40.74	*	45.10
Industrial fuel-sold	--	20.43	--	17.71	--	2.72	--	7.18
Domestic fuel	0.92	17.64	0.92	16.81	*	0.83	0.35	5.34
Miscellaneous [3]	0.96	92.97	0.26	39.19	0.70	53.78	0.13	45.64
Not used	0.06	1.33	0.05	1.26	0.01	0.06	0.02	0.53
Total	1.96	245.93	1.24	147.80	0.71	98.13	0.50	103.78

All Units

Fiber products	56.41	356.05	56.21	352.77	0.19	3.28	--	0.67
Charcoal	*	4.23	--	--	*	4.23	--	--
Industrial fuel-mill	62.38	164.43	7.09	8.19	55.30	156.24	102.79	411.39
Industrial fuel-sold	71.67	250.17	22.51	100.66	49.16	149.51	17.59	197.35
Domestic fuel	7.31	79.10	7.30	77.91	0.01	1.20	2.77	18.89
Miscellaneous [3]	127.93	223.98	75.89	62.21	52.03	161.77	55.23	189.81
Not used	3.38	8.82	2.83	6.81	0.55	2.02	1.03	2.72
Total	329.07	1,086.78	171.83	608.54	157.24	478.25	179.41	820.84

[1] *Suitable for chipping such as slabs, edgings, veneer cores, etc.*

[2] *Not suitable for chipping such as sawdust, veneer clippings, etc.*

[3] *Livestock bedding, mulch, small dimension, and specialty items.*

** = Less than 5 tons.*

Rows and columns may not sum due to rounding.

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Haugen, David E.; Pilon, John.

2002. **Michigan timber industry—an assessment of timber product output and use, 1996.** Resour. Bull. NC-203. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 85 p.

Reports findings of a survey of all primary wood-using mills in Michigan in 1996 and compares those findings with earlier surveys. Reports production and receipts of industrial roundwood by product, species, and county. Also reports the quantity, type, and disposition of wood and bark residues generated by Michigan's primary wood-using industry.

KEY WORDS: Pulpwood, saw logs, veneer logs, residue, growing stock.

The Forest Inventory and Analysis web site is:
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